The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 70, No. 4 — CHICAGO, ILLINOIS — JANUARY 26, 1918

A RARE TYPE OF BLADDER ULCER

FURTHER NOTES, WITH A REPORT OF EIGHTEEN CASES *

GUY L. HUNNER, M.D.

Fellow of the American College of Surgeons

BALTIMORE

In 1914, I described a rare type of bladder ulcer in women.[1] Further work with this type of bladder inflammation has not revealed new material of special value, but I hope that a new publication with illustrations may receive a wider hearing and familiarize physicians with this exceedingly important group of bladder cases.

The fact that ten new cases can be added in less than three years demonstrates that we are dealing with a condition which is not so rare as may have been inferred from the former report, and which will be discovered and relieved much more promptly when the profession awakens to its existence.[2]

There is no department of gynecology or of urology that has baffled our attention more than the complaints commonly classified as "irritable bladder," "neuralgia or neurosis of the bladder," or "neurasthenia with the mind centered on the urinary apparatus." We have used such terms as a diagnostic entity, or as a hazy cloak for our ignorance, in seeking to classify that large group of patients who persist for years in complaining of the severe symptoms usually associated with cystitis, but in whom we can find but little evidence of cystitis by the ordinary urinary and cystoscopic examinations, and who fail to answer to the usual methods of bladder and urethral treatments.

By discovering that some of these cases are due to a chronic urethritis, which in turn is secondary to a distant focal infection, I have demonstrated a definite pathologic basis for a large group of these cases.[3] Such patients may suffer for months or years with the most distressing bladder symptoms, even to the extreme degree of a complete incontinence, and may indefinitely resist all forms of bladder and urethral treatments, and then promptly recover without further local treatment after the removal of infected tonsils, or abscessed teeth, or the drainage of infected sinuses.

The demonstration of the bladder lesion under discussion has removed another considerable group of cases from the vague classification of "neurosis of the bladder," and placed them on a definite pathologic basis, enabling us to treat them in a logical and successful manner.

DESCRIPTION OF THE LESION AND DISCUSSION OF NOMENCLATURE

In my initial report, this lesion was spoken of as "simple" ulcer of the bladder for the reason that it is unassociated with any known infection. I contrasted this ulcer with the so-called simple ulcer of Fenwick.[4] Fenwick's terminology was based on the resemblance of his ulcer to the "simple ulcer" of the stomach, and he was apparently unaware that both Rokitansky and Tait[5] had forestalled him in this comparison.

This terminology was in use before the day of accurate bacteriologic work on the bladder infections, and it is a question now just what ulcers, if any, should be classified as "simple." In more recent years Buerger[6] has used the term "simple callous ulcer" to describe what is apparently the simple ulcer of Fenwick; but he reports one of his cases as beginning in pregnancy and yielding a *Staphylococcus albus* culture. Le Fur[7] states that simple chronic ulcers of the vesical mucosa do not always present themselves as round ulcers with thickened callous edges simulating ulcer of the stomach, but may offer very irregular forms or special aspects. He holds that they may be so small and superficial as to be called microscopic or histologic ulcers, as contrasted with the usual macroscopic ulcer.

Unfortunately, he illustrates the latter point by referring[8] to some of his results in animal experimentation, wherein histologic ulcers were caused after inoculation of the blood with organisms and then injuring of the bladder wall. Such conditions might conceivably result in what eventually might be called a simple ulcer; but these small fresh lesions in a recently inoculated animal would not correspond to the usual conception of a simple ulcer as one developing without demonstrable cause.

It is apparent to any one reviewing the literature of bladder ulcer that some organization, such as the American Urological Association or the American Association of Genito-Urinary Surgeons, could perform a valuable service by appointing a small commission to review the subject from every point of view, and adopt a nomenclature that would serve as a working basis for our present knowledge.

* From the Gynecological Department of the Johns Hopkins University.

1. Hunner, G. L.: A Rare Type of Bladder Ulcer in Women, with Report of Eight Cases, Tr. South. Surg. and Gynec. Assn., 1914, 27; Boston Med. and Surg. Jour., 1915, 172, 660.
2. Four new cases have been seen between June and December, 1917.
3. Hunner, G. L.: Chronic Urethritis and Chronic Ureteritis Caused by Tonsilitis, THE JOURNAL A. M. A., April 1, 1911, p. 937.
4. Fenwick: The Clinical Significance of the Simple Ulcer of the Urinary Bladder, Brit. Med. Jour., 1896, 1, 1133; Ulcer of the Bladder, London, J. and A. Churchill, 1900, p. 8.
5. Tait: On the Cure of the Chronic Perforating Ulcer of the Bladder by the Formation of an Artificial Vesicovaginal Fistula, Lancet, London, 1870, 84, 738.
6. Buerger, Leo: Pathology and Treatment of Callous Ulcer of the Bladder, Med. Rec., New York, April 12, 1913; Ulcer of the Bladder, THE JOURNAL A. M. A., Feb. 8, 1913, p. 419.
7. Le Fur: Des ulcérations vésicales et en particulier de l'ulcère simple de la vessie, Paris, G. Steinheil, 1901.
8. Le Fur (Footnote 7), p. 205.

Geraghty[9] has proposed the designation of "paracystitis" for the lesion under discussion; but this conveys the idea of an inflammation of the tissues surrounding the bladder, and is therefore inadequate.

My associate, Dr. Cullen, after a review of the clinical and pathologic features of this lesion, has suggested

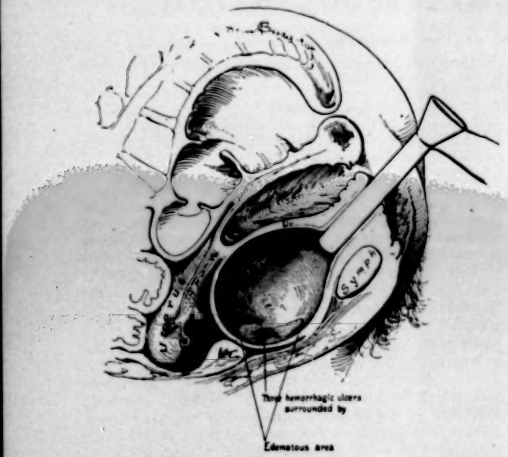

Fig. 1.—Location of multiple minute ulcers on the right vertex, and the surrounding edema area found at operation in Case 3.

the term "elusive ulcer," and this comprehends satisfactorily the difficulties in locating the ulcer part of the lesion, and its changing characters while under observation and treatment; but in common with any simple term, it fails to describe adequately the widespread character of the chronic inflammatory involvement of the bladder walls.

The lesion under discussion is a chronic inflammation of all coats of the bladder wall; and by the time these cases have reached me for treatment, the lesion has become widespread.

In the two least extensive cases, the lesion in Case 3 covered an area 3 by 5 cm., and in Case 11 an area 2 by 3 cm. In the more extensive cases the lesion has necessitated the removal of more than the upper three fourths of the bladder. In spite of this widespread lesion, there is remarkably little to be found by cystoscopy, and this is one reason that many of these patients have suffered fifteen years or more, and have traveled from clinic to clinic in an effort to find relief.

The crucial test in cystoscopy is the finding of a small abrasion on the mucosa surface which, if not bleeding on discovery, will easily bleed on being touched with an instrument or with a cotton pledget. It is this minute area that gives rise to the urinary findings of a few leukocytes or a few erythrocytes or both when the urine is carefully settled or centrifuged. Occasionally the distention of the bladder by air as the patient assumes the knee-breast posture causes this area to split, and a tiny stream of blood flows to the vertex. In such a case one first notices the blood-tinged urine in the vertex in striking contrast to the perfectly clear urine that has just been drawn by catheter; and by sweeping the speculum around the equator of the bladder, one finds the blood streak and can trace it to the source. The ulcer is usually found in the vertex or free portion of the bladder, as contrasted with the location of the Fenwick ulcer on the base or fixed portion (Figs. 1 and 2). Its frequent location on the anterior superior wall is another reason for its having escaped diagnosis, this being a difficult area to examine with either the direct or the indirect methods of cystoscopy.

With the proper knee-breast posture and good relaxation of the patient, we can examine every portion of the bladder mucosa, including the anterior wall back of the symphysis. When there is any difficulty in a free examination of the anterior wall, this can easily be brought into vision by sliding the free hand beneath the mons veneris and gently lifting the anterior wall of the bladder into line with the examining cystoscope.

The actual abrasions of the mucosa may be single or multiple. If multiple, they may be in a small group (Fig. 1) or they may be widely separated, one ulcer being found in the vertex, perhaps close behind the symphysis on the anterior wall, and another near the base on the posterior wall (Fig. 2).

These ulcers are always small, varying in diameter from 2 to 5 mm., and they appear to be very superficial. I have never seen them covered with fibrin or with a deposit of urinary salts, and have never seen them present a picture suggesting malignancy.

They are exceedingly sensitive on being touched, and it is most gratifying on discovering one of these ulcers and touching it to have the patient who has been through many fruitless cystoscopies exclaim, "There: you have found the right spot at last!" The preliminary bimanual examination of the bladder will often suggest the location of the ulcer because of this tenderness. It is probably this preliminary palpation that

Fig. 2.—Site of the inflammatory area near the posterior pole in Case 8. In addition to this area there was a small ulcer back of the symphysis on the left anterior wall, and at operation an area 10 by 4 cm. was removed to include all the congested area.

starts the bleeding in some cases after one has just catheterized clear urine.

On cystoscopy one's attention is not infrequently first arrested by a glazed, dead white appearance of a portion of the bladder mucosa. In such an infiltrated area the vessels may have a broken or "choppy"

9. Geraghty: Infections of the Bladder, with Special Reference to Localized Resistant Areas of Cystitis, Surg., Gynec. and Obst., 1917, 24, 655.

appearance, only short segments of vessels appearing on the extra pale surface. One may see a dead white scar area with a small congested area in the immediate neighborhood; and while one is examining this area, or after one has touched it, the congestion becomes marked and may even begin to ooze blood (Fig. 3).

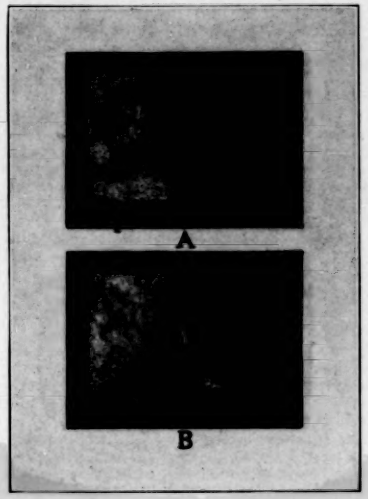

Fig. 3.—Cystoscopic appearances of an area near the posterior pole region in Case 8. The vascular changes from *A* to *B* occurred spontaneously while the artist was viewing the field through the speculum.

Sometimes during the cystoscopy an area of edema appears, the mucosa taking on a deep red congested appearance and being raised above the general mucosa level. This area of edema may occur immediately about the ulcer area or it may appear on a portion of the wall at some distance from the ulcer. It may be absent at several consecutive examinations and then appear at a subsequent examination. It is particularly likely to be seen if the patient is in the midst of an unusually bad period of bladder symptoms with strangury. The significance of this edema area will be fully discussed under the section on treatment.

ETIOLOGY

The cause of this type of bladder inflammation remains a mystery. There is no evidence from the histories of these patients that the condition began as an infection in the urine. The patients, except in Cases 7 and 16, gave no history of having had pus or blood in the urine at any stage of their cystitis history. In Case 7, the patient said she had seen blood in the urine at times during the sixteen years of her symptoms. In Case 16, the patient was convinced that her bladder trouble of eighteen years' duration began after an operation, and was due to faulty catheterization. She was known to have had at that time a typical generalized cystitis with pus in the urine.

With this one exception, none of the cases, so far as could be determined by the histories, followed operation, childbearing or gonorrhea.

The urine is always sterile on our ordinary culture mediums. Attempts to grow anaerobic cultures from the removed tissues have resulted in failure, as have many attempts to find organisms in the tissues by numerous methods of staining.

In my early cases the long duration and the resistance to treatment made me suspect primary tuberculosis of the bladder; but the excised specimens examined microscopically did not bear out this view.

Because my work has demonstrated the probable relationship between infections of the tonsils, adenoids, sinuses and teeth, and conditions of chronic infiltration in the ureters and urethra, I have suspected that this chronic infiltration in the bladder wall may have a similar focal origin. These patients all have an infiltration, granulation, and extreme hypersensitiveness of the urethra. The tenderness and scar tissue contraction was so marked in most of the cases as to require thorough cocainizing and careful manipulation in order that satisfactory cystoscopy might be done. Fenwick emphasizes this urethral hyperesthesia in most cases of nonmalignant ulceration of the bladder, and advises chloroform anesthesia for cystoscopic examination. It is possible that the bladder ulceration and the inflammatory condition of the urethra may have a common cause, or it may be that the frequency of voiding and straining bring about a hypertrophy and hypersensitiveness of the sphincter region and an inflammation of the urethral tissues. I am inclined to take the latter view from the fact that these patients have no symptoms referable to the urethra after recovering from the excision of the bladder lesion. The location of these lesions in the vertex or free portion of the bladder, instead of in the base where there is the richer blood and lymph supply, probably argues against the focal infection theory.

The fact that many of the patients begin with their bladder symptoms in early life (seven of them dating the onset at 20 years and under) would tend to bear out the focal infection theory. On the other hand, the histories and examinations of these patients have

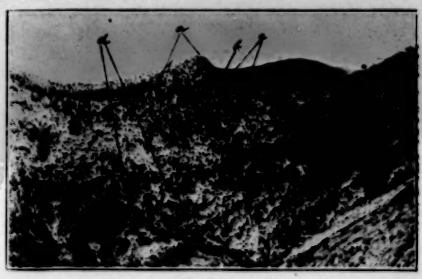

Fig. 4.—From Case 7 (Pathologic No. 29137): *a*, gradual fading of transitional epithelium; *b*, ulcer area, made up largely of blood vessels; *c*, muscle in mucosa layer; *d*, blood vessels packed with leukocytes even in the deeper layer of mucosa.

not borne out the theory of a distant focus of infection in the striking manner we find to be the rule in most ureteral stricture cases.

We have failed to make the systematic notes that should have been made on the condition of the teeth.

In Cases 4 and 7, the patients thought their bladder trouble began soon after the infectious fevers of child-

hood. In Case 3, the patient, who had suffered with bladder symptoms "all her life," had tonsillitis as a child. In Case 8, the patient had a severe attack of tonsillitis soon after the bladder trouble began at 15 years of age. In Case 16, the patient, whose bladder trouble began after an operation at 21 years of age, had had her tonsils guillotined when she was 12 years old. In Case 18, the patient, aged 28 years, had suffered with her tonsils, and had had them removed five years after the bladder symptoms began. In

Fig. 5.—From Case 3 (Pathologic No. 20722): *a*, abrupt ending of stratified epithelium at edge of healing ulcer; *b*, single layer of cuboidal cells; attempt at repair over the healing area; *c*, so-called cysts or glands, with mucous or goblet cell lining; *d*, smooth muscle in mucosa layer; *e*, blood vessels filled with leukocytes; *f*, collection of small round cells and leukocytes. General rarefaction due to edema.

Case 15, the patient, aged 30 years, said that her bladder trouble had begun three years previously while she was suffering with a severe "cold." In Cases 8 and 10, the sinuses were diseased. In Cases 2, 5 and 9, the patients had rheumatism.

Sex.—My eighteen cases have all occurred in women, my work being confined to this sex. Dr. Geraghty has recently been finding these cases in men, and he thinks that their clinic has overlooked many of this type in the past and sent them away unimproved, after long courses of various forms of bladder and urethral treatment.

Age.—In my first eight cases, reported before, the average age of the patient on consultation was 37 years; the average duration of symptoms was seventeen years, making the average onset age 20 years. In my last ten cases the average age at consultation was 44.2 years, and the average duration of symptoms ten and four-fifths years, making the average age of onset 33.4 years.

Childbearing does not seem to have any relation to the disease, nine of the eighteen patients having been unmarried.

SYMPTOMS

The chief symptom associated with this type of bladder ulcer is pain. Associated with the pain, the other symptoms of cystitis occur in varying degree, namely, frequency day and night, strangury, burning and smarting. The pain is often of the most extreme grade, the patient complaining of a jabbing or stabbing knifelike pain or of a sensation of a jagged, sharp stick in the bladder. In Case 8 the patient often had such extreme urgency that she had to leave a streetcar in order to enter the nearest house and ask for permission to void. In Case 6 the patient expressed the urgency of her pain by saying that if she were crossing the street, and an automobile were bearing down on her at the time of getting one of her knifelike stabs in the bladder, she would have to drop in her tracks and allow the automobile to run over her. In Case 3, the patient, when at her worst, could not allow people to walk across the room in which she was sitting because of the increased pain from the vibration of the floor. One is at a loss to describe the misery of these patients without selecting such descriptions from the patients themselves.

The pain is often referred to some other portion of the pelvis, particularly to the rectum. The pain is often increased after eating, probably owing to increased peristalsis. It is increased when there is "gas on the bowels" or when the patient is constipated, and just before and during stools, probably because of the fecal matter's passing by the tender peritoneum located over the diseased area of the bladder wall.

Pain referred to the hip corresponding to the side of the open ulcer is not uncommon. Pain in the perineum is common. The patients often say they must sit down in a particular manner, resting mostly on one hip, or sitting on the edge of the chair. Turning in bed at night may bring on severe pain and awaken the victim. In other words, these patients are in a constant state of muscular tension in an effort to "splint" the bladder and give it no undue movement or jarring.

The rectal symptoms, together with the failure of a diagnosis, sometimes convince the patient that a cancer of the bowel is developing. It is largely because of these referred pains, and the failure to make a diagnosis, that these patients are so often operated on for other supposed lesions.

Urine Examination.—The diagnostic features of the Fenwick type of ulcer are pain and hemorrhage. Only one of our eighteen patients reported having seen blood in the urine.

The urine is macroscopically crystal clear except for a mucin cloud in suspension; a hurried microscopic examination may readily miss the few erythrocytes practically always present. In a suspected case one

Fig. 6.—From Case 3 (Zeiss DD, 4.3 mm., reduced about one half): *a*, the horizontal arrangement and "hornified" appearance of the epithelial cells; *b*, single cuboidal layer over healing area; *c*, muscle cells of the mucosa layer; *d*, capillaries filled with leukocytes.

should always settle, pipet and centrifuge the urine. We still hear the expression "an occasional leukocyte and an occasional red blood corpuscle, not enough to indicate any trouble." As long as clinicians take this attitude, these cases will be undiagnosed.

While treating these patients we can occasionally get the ulcer to heal over temporarily; at such times

we may be unable by the most careful microscopic search to find a pathologic element in the urine. At the patient's next visit a week later we are very likely to find the usual few leukocytes or erythrocytes or both.

PATHOLOGY [10]

The histologic study of specimens removed at operation shows a fairly uniform picture in all cases. It is a picture of chronic inflammation involving all coats

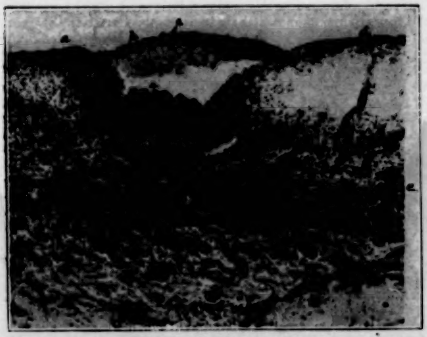

Fig. 7.—From Case 8 (Zeiss AA, 17 mm., reduced about one half): *a*, absence of epithelium except in protected depressions; *b*, bridge of organized tissue covering depression; *c*, blood vessel in bridge; *d*, unusual thickening of basement membrane; *e*, prominent muscularis mucosae.

of the bladder and extending over the wide area which at operation shows the edematous thickening. At the site of the minute ulcer there is loss of the epithelial coat, and the underlying mucosa shows the granulation tissue characteristic of an active ulcer (Fig. 4). Other sections, taken from what appears to be an ulcer in the gross specimen, show an abrupt ending of the epithelial layer at the edge of an area that is evidently undergoing healing, and here the mucosa layer is less richly supplied with capillaries, and is much like the mucosa beneath the epithelial covering, showing a preponderance of connective tissue and infiltration of small round cells and leukocytes. Such a healing area may be covered by a single layer of cuboidal cells (Figs. 5 and 6).

Figure 7 shows another type of attempt at repair of the epithelial layer. In several of our sections we find depressed areas in the mucosa which have apparently become filled with fibrin or serum and in the bottom of which new epithelium is growing. This specimen shows, extending across the depression, a protecting bridge in which can be traced organized tissue, including blood vessels.

In general, the transitional type of epithelium has changed to a flattened horizontal type. Compare the normal transitional type of epithelium in Figures 8 and 9 with the changed types in Figures 5, 6 and 11.

It is interesting to find on the histologic examination that broad areas of the mucosa may be denuded of the epithelial coat even though the cystoscopic picture showed only a small ulcer area. It is possible that this wide loss of epithelium is an artefact due to the trauma during operation or during the preparation of the specimen. Great care has been used, however, during the operation not to injure the epithelium, and I think that a glance at Figures 5 and 6, showing the abrupt ending of the epithelial layer on the edge of an area apparently not in active ulceration, will convince one that this was the condition in vivo. The gradual shading off of the epithelial coat in Figure 4 *a* at the edge of an ulcer area is similar to the gradual ending of the epithelium in Figure 12 *a*, where the denuded area is covered by an intact thickened basement membrane and shows no special evidence of ulcer.

A thickening of the basement membrane is a prominent feature in some cases (Figs. 12 and 7). Apparently this basement membrane thickening is not dependent on the absence of the epithelial layer, but appears as well beneath the areas covered with epithelium, as seen in Figure 12.

In Case 3 there occur many of the so-called "glands of the bladder" lined with goblet cells (Fig. 5 *c*). The significance of these will be discussed in our future full pathologic report.

The mucosa layer in the neighborhood of the ulcer shows an increase in the number and size of the capillaries, varying in the different specimens. The capillaries are often stuffed with leukocytes, as are many of the lymph spaces. There are some enlarged lymph spaces crowded with lymphoid cells and leukocytes, and where these are seen lying beneath the normal epithelium near the ulcer, they at first suggest the picture of tubercle (Fig. 12 *d*). There is an appearance of hyalin degeneration in some areas, and in some of the sections the edema causes rarefication.

It is important to note that the presence of leukocytes stuffing the vessels in these specimens probably has no pathologic significance. Figures 8, 9 and 10, representing a section of bladder wall which I removed from a patient who had never had a history of cystitis,

Fig. 8.—From normal case (Zeiss AA, 17 mm., reduced one half): *a*, transitional type of epithelium; *b*, indistinct basement membrane; *c*, muscles of mucosa layer; *d*, medium sized vessels of mucosa layer; *e*, large vessels of submucosa region; *f*, muscle layers.

show the presence of a great many leukocytes in spite of the fact that the specimen was removed with as great rapidity and with as little trauma as possible, and was fixed in formaldehyd solution at once.

The muscularis mucosae seems to be hypertrophied in most of the specimens (Figs. 5 *d*, 8 *c*, normal, and 7 *e*).

10. The author hoped to have ready with his associate, Dr. George L. Stickney, a full report on the pathology of this condition. Dr. Stickney was one of the early volunteers to leave for medical service in Europe, and we shall therefore defer the full pathologic report for a future publication.

The muscle coat shows enlarged lymph spaces filled with small round cells; these spaces, as well as some of the blood vessels of the muscle coat, contain many leukocytes. Immediately beneath the ulcer, the muscle in places shows invasion and breaking up by the inflammatory process.

The peritoneum, subtending a diseased area, shows decided thickening.

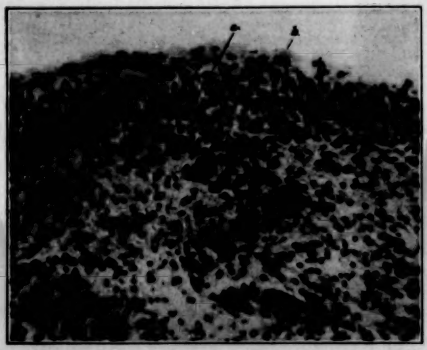

Fig. 9.—From normal case (Zeiss DD, 4.3 mm., reduced one half; enlarged from Fig. 8): *a*, typical transitional epithelium; *b*, cell of surface layer with double nucleus.

DIAGNOSIS

The diagnosis of this form of bladder inflammation rests on the history, the urine examination, the cystoscopic findings, and the reaction of the disease to treatment.

So far as I know, there is no form of bladder inflammation or ulceration that presents an absolutely characteristic clinical history or cystoscopic picture. The process under discussion is no exception to the rule.

The patient's recital of the insidious onset without apparent antecedent cause, and the long duration in spite of various forms of treatment, make one think at once of tuberculous disease. This is excluded as soon as one finds macroscopically clear urine associated with such a long history, and absence of any sign of disease of the kidney or ureter.

One sometimes gets a history of serious symptoms simulating cystitis from patients suffering with chronic urethritis. The presence of microscopic pus or blood or of both in urine catheterized from women makes one certain that one is dealing with something more than a urethritis. Rarely one gets a few blood cells from trauma to the sphincter region during insertion of a catheter.

I have learned by experience to suspect the presence of this lesion when I am consulted about any patient who has suffered for years with symptoms chiefly referred to the bladder, but varied enough in character to have led to a number of operations without relief of the symptoms. If such an outline of trouble ends with the statement that "there has never been anything of importance in the urinary findings, only at times a few leukocytes or red cells," my suspicion is changed to a practical certainty.

These points may best be emphasized by a brief summary of the efforts at diagnosis and relief in two of my recent cases:

Mrs. W., aged 50, referred in January, 1917, by Dr. Catherine Macfarlane of Philadelphia, had suffered for eighteen years with symptoms chiefly referable to the bladder. She was convinced that these symptoms dated from a cystitis due to faulty catheterization after an Alexander operation.

The patient wrote me in April, three months after operation, to say that she was "perfectly well," and she sent me an interesting file of correspondence concerning her case, showing that she had been under the care of some of the best medical and surgical talent in Philadelphia, Baltimore, New York and Boston; and in her fits of despondency over the failure of these leaders in our profession to benefit her, she had interspersed among these treatments Christian Science, osteopathy, mechanoneurotherapy, and other *fin de siècle* methods in an attempt to get well. The patient had all of the diseases of childhood in a severe form, and at 12 years of age the tonsils were guillotined. She was married in 1896 at 19 years of age, and her first child was born a year later. In May, 1898, she had the Alexander operation, followed by the severe attack of cystitis. About a year later a Boston gynecologist made a cystoscopic examination under anesthesia, and diagnosed a colon bacillus ulcer of the bladder. This was later treated by a Philadelphia gynecologist, and it was apparently completely cured, according to cystoscopic findings. The symptoms, however, continued. In 1900, the sphincter ani was dilated by an osteopath. In 1903, the patient tried Christian Science. In 1905, a prominent Philadelphia gynecologist made an abdominal exploratory operation, and found a few adhesions spreading from the top of the uterus over the posterior wall of the bladder. These were cut, and it was hoped that the cause of the symptoms had been found; but there was general disappointment when the patient again became active and found that her old symptoms were still with her. In 1913, vaccines were used in the hope of clearing up abdominal adhesions. Bladder irrigations were tried, and an examination of the right kidney was made. The patient was sent away for a rest cure, a Philadelphia neurologist having concluded that she needed "a course of nervous and mental training with particular attention not only to control of the bladder function but along other lines." She was prescribed "a period of six or eight months at a place like Lake Placid, or in Canada, with a nurse of sufficient brain power and force of character and training to be able to carry out in detail the directions of the physician, and at the same

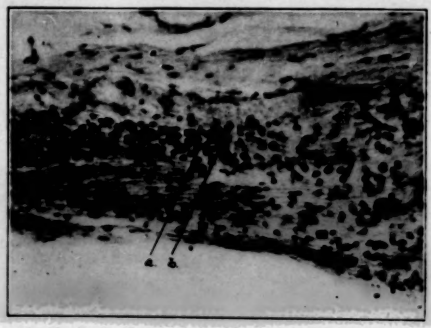

Fig. 10.—Section of muscle wall next to peritoneum, from normal case (Zeiss DD, 40.3 mm., reduced one half): *a*, vessel crowded with leukocytes; *b*, leukocytes traversing vessel walls. It took perhaps three minutes to strip back the peritoneum and to cut out the specimen, pin it to a thin board, and drop it in formaldehyd solution.

time to direct the mental training when the proper time has arrived." In 1915, after the patient had considerably reduced her weight by diet, the right kidney was found floating, and a fixation was done. In 1916, treatment by the roentgen ray, electricity, and colored lights were used. Pyorrhea was discovered, and two teeth were drawn. Later there was treatment for arthritis. On first consulting me, the patient was

convinced that the fixed right kidney was back of her bladder symptoms, and that it should be removed.

The foregoing is only a brief summary, and does not begin to cover the field of the various diagnoses and treatments during these eighteen years of suffering.

My latest patient, Case 18, a woman, aged 28, unmarried, had been suffering with bladder symptoms for six years, dur-

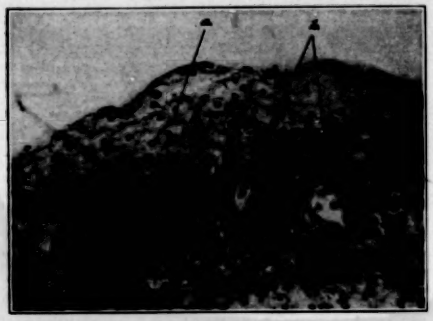

Fig. 11.—From Case 4 (Zeiss DD, 4.3 mm., reduced one half): *a*, flattening and "hornification" of upper layers of epithelium; *b*, clear spaces at base of epithelial layer, one space containing two leukocytes and one space an epithelial cell with double nucleus.

ing which time she had been in the hands of at least seven different physicians, all of them of excellent standing in their respective specialties. In the first year of her trouble she saw two physicians in Atlanta, one of whom gave her urethral and rectal irrigations, and the other dilated the urethra and "removed a small growth from the external orifice," and reported a negative bladder examination. He also catheterized the right ureter with negative results. Three and a half years before I saw the patient, a prominent Baltimore physician examined carefully with the cystoscope with negative results, dilated the urethra, and treated with radium for vaginismus. Eighteen months before, a Greenville, S. C., physician found an ulcer in the bladder, and after a few bladder treatments the bladder seemed normal, and the urine was reported normal; but the patient's symptoms remained the same. One of her chief symptoms was pain in the left labium. This physician severed the left pudic nerve without benefit. One year before, he did an exploratory celiotomy and "removed a normal looking appendix and a normal looking left ovary, and suspended the uterus." He also removed the left labium minus. Six months before, a Columbus, S. C., physician examined the bladder and kidneys with negative results. Eight months before, tonsillectomy was done. Four months before, a prominent Atlanta specialist treated her for sacro-iliac joint trouble without benefit.

The patient was referred to me in March, 1917, by Dr. Barker. A typical lesion was found, consisting of a small ulcer in the right vertex and a congested area of mixed scar and vascular tissue in the left vertex. At operation the edema area carried us far down the posterior wall and on the base, and at the close of the operation there was just enough flap of bladder wall on the left side to be brought across to the resected edge of the right base and trigonal region. The remaining bladder probably held less than 1 ounce. One month after the patient's return home she reported: "Although my bladder is not quite well yet, the unpleasant symptoms are so slight now that they cause me very little inconvenience. The pain and gas in the stomach have entirely disappeared, my bowels move well without laxatives, and the old rectal discomfort is a thing of the past. My bladder will hold easily 10 ounces; and best of all, I am quite free from those horrible perineal spasms which had puzzled so many doctors and almost wrecked my nervous system. My appetite is good, I sleep well, and have gained 12 pounds since I left the Hopkins. My strength has returned with amazing rapidity; I ride and walk without pain, and I am sure that you would be pleased to know how much I am able to do in the way of housework."

Nine of the eighteen patients had had a total of sixteen operations directed toward the relief of their symptoms. These operations were largely futile because of a failure to make a proper diagnosis. I operated in Case 2, doing a perineal repair and supravaginal hysteromyomectomy, and in Case 4, removing an atrophic appendix, before discovering that the patients' chief symptoms were due to this type of bladder inflammation.

TREATMENT

After an experience with eighteen cases, covering a period of seventeen years since treating the first patient, and a period of nine years since seeing the second patient and beginning to make a special study of this type of bladder inflammation, I believe it safe to say that no form of treatment will suffice in these cases except complete excision of the inflammatory area.

In Case 2, the patient is still under observation after nine years of intermittent treatment, and her cystoscopic picture has remained practically constant, the symptoms being alleviated materially when she persists in having an application of 10 per cent. solution of silver nitrate once in six weeks. From the first there has been a minute area of ulceration in the upper left vertex of the bladder close back of the symphysis. When the symptoms have been aggravated, there has been some edema about this ulcer area, and in addition an area of edema 3 or 4 cm. in diameter in the middle vertex. When the symptoms have been alleviated after a systematic course of treatments, the ulcer area on two or three occasions has seemed to be healed, and could then be identified only by a slight congestion.

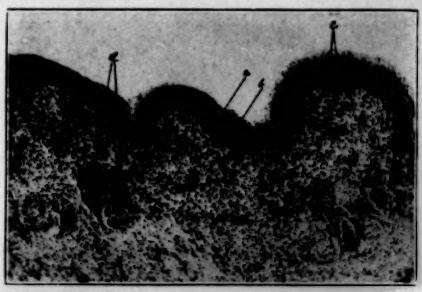

Fig. 12.—From Case 6 (Pathologic No. 20073): *a*, gradual fading of transitional epithelium; *b*, marked thickening of basement membrane; *c*, marked connective tissue thickening and small round cell infiltration immediately beneath the epithelium; *d*, focus of small round cells.

On such occasions the urine after careful centrifugation has been entirely free from pathologic elements. This "healed" condition has never been seen on two successive examinations, and the patient has never been entirely free from symptoms. She has had persistent courses with instillations twice a week with mercuric solution, 1:10,000 and with silver nitrate solution, 1:500, but the most effective treatment has

been with applications of 10 per cent. silver nitrate solution about once in four or six weeks. She was 54 years of age when first seen, and then had a repair of the outlet and supravaginal hysteromyomectomy

Fig. 13.—Excised specimen in Case 3. The area of edema and congestion measures about 3 by 5 cm., surrounding the small central ulcers. Naturally the trauma of operation makes the specimen more congested than it appears at cystoscopy.

before the true cause of her symptoms was discovered, and she has since preferred the comparative relief obtained by local treatments to the prospects of another operation.

In two other cases (10 and 13) the patients, aged 68 and 57, respectively, have not been operated on because of their age and general condition. In Case 10 the patient was treated in two consecutive summers by local applications of silver nitrate and has not been seen for a year past, but she still has bladder symptoms. In Case 13 the patient has had systematic treatment for more than a year with instillations given at home by her daughter, 1 ounce of 1:500 silver nitrate solution being used twice a week. In addition, she has had occasional applications of 10 per cent. silver nitrate solution. She has a small ulcer on each lateral wall rather near the base, and an edematous, angry, red area across the anterior wall of the bladder. The ulcers have been temporarily improved and the symptoms apparently benefited by the use on two occasions of the actual cautery wire.

The other fifteen patients have all had excision of the diseased area. In Case 9 the patient died. I had observed in the after-treatment of three successive patients operated on before Case 9 that there was complete incontinence for three or four days after operation, all the urine escaping through the urethra in spite of the suprapubic drainage tube. This led me in Case 9 to omit the drainage tube.

The resected bladder when closed held about 1 ounce. The nurse failed to report that the patient was not having incontinence, and she was in great distress for seven hours until catheterized of 50 c.c. of urine. After the first catheterization the patient had incontinence.

At the operation, the peritoneum was so adherent over the posterior wall of the bladder that it was found necessary to do the transperitoneal operation and remove with the posterior bladder wall an area of peritoneum 2 by 4 cm. in extent. Great care was taken in closing the bladder, a combination interrupted and whipped suture No. 2 chromic twenty-day catgut being used instead of my usual closure with a running lock stitch suture. The first sweep with the interrupted portion of each suture took in all coats of the bladder, and the second sweep or whipped portion of the suture buttressed in the outer coats of the bladder. After closure of the bladder with a series of these sutures, the peritoneum was closed with a running suture, and then the line of bladder sutures was reinforced with a generous layer of fat and fascia. Two gauze and rubber wick drains were placed down to the bladder, and the suprapubic wound was closed about these.

In spite of the overdistention of the bladder on the first day, the patient seemed to do well until on the night of the second day, there being incontinence after the first catheterization and evidence of bladder leakage in a free suprapubic drainage of urine. Thirty-six hours after operation there was bleeding from the suprapubic drainage tract. This seemed to cease after twenty-four hours, the patient losing considerable blood in this time, and the pulse rising from 100 to 130. On the fourth day the bleeding having apparently ceased, we removed the two suprapubic drains and there was a gush of what appeared to be a pint of urine and blood which had been accumulated under pressure in the prevesical space. We considered that this gush of fluid under pressure argued for an intact peritoneal closure. The patient did not improve after removal of the drains, and eight hours later, on the evening of the fourth day, there was considerable distention

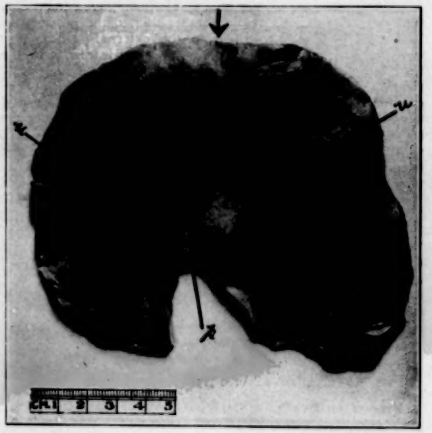

Fig. 14.—Section of bladder wall removed in a recent case. Arrow points to edge of mucosa 1 cm. from the sphincter urethrae. The area of edema seen over most of the specimen extended to within 2 cm. of the sphincter; u, u, two ulcers in the right and left vertex. An ulcer on the posterior wall at p was excised at the operating table and given to the pathologist for maceration and an attempt to grow anaerobic organisms. Bladder wall at * and over most of the area of edema about 1 cm. thick as contrasted with the 2 mm. normal thickness at the edges of the specimen.

and eructation, and the patient occasionally brought up brownish fluid. The temperature, 101.6 in the morning when the drains were removed, had dropped to 100 at night, but the pulse seemed weaker. The leukocytes were 30,000.

The patient was rather stout, and we could not determine whether she had a low grade peritonitis or an intestinal ileus. The wound was opened, and through a small forceps opening through the fatty omentum there was found no evidence of peritonitis. On the passing of a stomach tube there was a great gush of air, and almost a quart of brownish fluid with suggestive fecal odor was removed. The stomach was washed again at midnight and on the morning of the fifth day, and after this washing an ounce of castor oil was left in the stomach. Two copious stools at noon showed considerable oil. The patient seemed better until the morning of the sixth day, when she became irrational and unconscious, and she died at 4 p. m. that day.

In the other fourteen excision cases, with the exception of Case 5, the patients have had wonderful recoveries from their previously miserable existence, and they form a group of most appreciative and grateful patients. In Case 5, the edema area disclosed at operation spread low over the base of the bladder, and to have excised beyond the edema line would have necessitated working close to the ureters. This was the first case in which I performed operation, Dr. Kelly having operated in Case 1 seven years previously, after I had made the diagnosis of ulcer and had treated the patient by various methods for more than five years.

Case 5 being my first operative case for this type of ulcer, I did not appreciate the significance of the widespread edema area, and undoubtedly left a portion of this. Our operation experience with these cases and subsequent microscopic studies have taught that the edema is coexistent with the chronic infiltration of the bladder wall. It is probable that the patient will again develop ulcer and symptoms if the excision fails to include the entire edema area (Figs. 13 and 14).

In Case 5, the patient made a splendid recovery, and seven weeks after operation reported: "I have been home three weeks now and am still improving. I get up about three times every night; occasionally it has been only once. When I came home I was voiding only 3 ounces, and now I have increased to 7 ounces." A week later the patient wrote me, in distress, that her old pains had returned and that the bladder capacity had dropped to 4 ounces. She is still suffering, four years after operation, and refuses to come back for another excision, although her physician reports that there is only a "tiny red spot" in the bladder. As incredible as it may seem, this patient was operated on one year after my bladder operation for "a fibroid tumor pressing on the left side of the bladder." Among the four operations she had had before I saw her was one abdominal section for "fibroid tumor pressing on the bladder."

As stated before, the cystoscopic picture in one of these bladder ulcers is not sufficiently characteristic to justify one in operating on a patient on the evidence gained by cystoscopy alone, and I trust that this paper will not lead to the removal by operation of bladder ulcers that should be treated by other methods.

I am becoming rather more radical in advising the removal of other types of ulcer. At times we are able to cure a general cystitis, with the exception of one ulcer area which seems to persist indefinitely in spite of various local applications. If such an ulcer is located in the upper portion of the bladder where it is easily accessible to operation, and if it refuses to heal even after the use of the actual cautery, I consider its excision a more conservative and much more certain method of treatment than the making of a vesicovaginal fistula. Another type of persistent chronic ulcer, fortunately of rare occurrence, is one which persists for years after the removal of a tuberculous kidney. It is not so uncommon to have cystitis symptoms persist for one, two or three years after the removal of a tuberculous kidney, but this is usually due to infiltration about the ureterovesical region, which eventually heals. On rare occasions a solitary ulcer will persist in the vertex of the bladder and perpetuate the patient's preoperative symptoms of cystitis indefinitely. Such an ulcer should be excised.

Given a patient who has had years of bladder misery in spite of many courses of systematic bladder treatment, who has microscopically clear urine, free from infection, but containing microscopic blood and leukocytes, and whose cystoscopic examination reveals one or more minute ulcers, one is justified in making a diagnosis of this type of ulceration.

Usually patients with a minute bladder ulcer have not had systematic treatments because the ulcer has been overlooked in spite of their ulcer history. For this reason it will be safer for those who have not had experience with these cases first to subject the patient to more conservative forms of treatment before making a final diagnosis. I have thus treated the patients on whom I have not operated: Case 2, nine years; Case 10, during two successive summers; Case 13, over one year. In none of them has there been more than an amelioration of the symptoms, and in none has there been an appreciable change in the bladder lesion. Of the patients on whom I operated, I treated with like results Case 1, intermittently for five years, Cases 7 and 8 systematically for more than a year, Case 11 once a week for two months, and Case 9 intermittently for a year.

Except in Case 1, the diagnosis was made promptly, and the long courses of treatment before operation were due in Case 9 to the patient's reluctance to undergo an operation, and in the other cases to a deliberate postponing in an effort to test the effects of various methods of treatment.

The diagnostic features in this form of bladder inflammation are so clear in most cases that one is not justified in allowing the patient to continue suffering under ordinary methods of treatment unless the patient objects to operation or has some other factor, such as advanced age, or heart or lung disease, to contraindicate operation.

No better evidence can be adduced as to the extent of the suffering of these patients than to see them willingly accept another operation as the possible way out, even when they have been through from one to five operations with similar hopes of relief.

My conservative treatments consisted of instillations, local applications and the use of the high frequency current and the actual cautery wire. The instillations consisted of as strong solution of mercuric chlorid (usually 1:10,000) or of silver nitrate (usually 1:500) as the patient could bear, 1 ounce of the solution being left in the bladder twice a week. This treatment can be carried out by a nurse at the patient's home. Local applications were made of some strong cauterizing agent about every four to six weeks. For these we use pure phenol (carbolic acid), the silver stick or, as has usually proved most satisfactory, the 10 per cent. silver solution. The high frequency current has been tried twice on one patient and once on another, and both patients refused to have further

treatments by this method because of the after-pain. In contrast to this result it is rather curious that the actual cautery wire, used on two of these patients, has given satisfaction as regards the amelioration of symptoms, but we have not seen an ulcer of this type show increased tendency to heal after the use of the cautery; while for the chronic ulcer following an infected cystitis, this has usually proved a valuable method for getting the deep slough necessary for final healing.

When we study the excised specimens microscopically, and see the widespread chronic infiltration and inflammation of all coats of the bladder wall, we are not surprised that excision is the only method of cure.

OPERATIVE TECHNIC

The excision is done through a suprapubic incision. To facilitate the finding and handling of the bladder, it is left full of air if cystoscopy has just been done in the knee-breast posture, or it is distended with sterile fluid just before operation.

If possible, the operation is kept extraperitoneal. This can be accomplished in those cases in which the disease is confined to the vertex and anterior wall. If the disease involves a portion of the bladder covered by peritoneum, it is possible in some cases to separate the involved peritoneum; but more often the attempt at separation results in an opening into the peritoneum or into the bladder.

Experience has taught that the best method of separating the peritoneum is first to brush back the vertex portion as far as it will go with ease; then, instead of persisting in trying to carry this separation farther down the posterior wall from the vertex, one should next free the lateral walls and attempt to get down near the ureter regions on both sides. From near the base in the lateral or ureter regions one can work toward the midline about the base of the bladder; and after separating the peritoneum in the uterovesical region, one can finally come forward on the posterior wall until the entire peritoneum, except the urachus portion, is freed. The freeing of the urachus portion can be done with less danger of entering the peritoneum if done as the final stage in the separation than if undertaken as the first step.

If it is found at any point that the peritoneum cannot be separated from the bladder wall, it is best to continue the separation at other points until all the peritoneum that will separate easily is free. Then one enters the peritoneum with a free opening and packs off the peritoneal contents with an abundance of hot salt solution gauze pads before entering the bladder. One always tries to determine by cystoscopy where the first opening into the bladder should be made in order to avoid the inflammatory area.

If the redness and the edema of the bladder mucosa have extended over the anterior wall of the bladder to within 1 or 2 cm. of the sphincter urethrae, it is well to make the first incision as near the urethra as can safely be done without taking the sphincter.

If the preliminary cystoscopic studies have shown the inflammatory area to be located to the right of the midline, one makes the first incision in the midline or slightly to the left. In spite of the most careful cystoscopic studies, one usually finds at operation that the inflammatory area, as indicated by the edema, is more widespread than anticipated, and one may open through the inflammatory area instead of opening through normal mucosa near one edge of the diseased area as intended.

Every portion of the bladder wall should be carefully inspected before the end of the operation in order to make certain that all the edematous wall is removed.

On opening the blader, one may first fail to see the one or two small ulcers before seen by cystoscopy, because the edema arising during the preliminary freeing of the bladder may elevate the mucosa about the ulcers in a manner almost to hide them. Usually the preliminary trauma has caused the ulcer or ulcers to bleed so they are easily found on opening the bladder. A suction apparatus should be ready to keep the bladder clean during operation, and sponging should be avoided. The mucosa should be handled as little as possible in order to preserve its microscopic features. In order to preserve its natural outline for microscopic study, the specimen should be pinned to a thin board as soon as removed, being stretched to its former size as nearly as possible, and then dropped at once into the hardening solution.

During the bladder operation, all blood vessels of the wall should be carefully clamped and either tied at once or at the close of the excision. The bladder vessels are liable to retract into the wall and cease bleeding temporarily, only to give serious trouble later. The presence of urine is liable to interfere with coagulation and determine a serious bleeding from a small vessel that would promptly close in another location.

In Case 3, oozing of blood from the suprapubic wound began on the night of the third day, and continued intermittently for four days.

In Case 9, I attribute one of the chief causes of death to hemorrhage which began on the second day and continued for twenty-four hours. It was not the hemorrhage per se that played an important rôle in the patient's death; but the hemorrhage prevented me from starting the drains at a time when we feared that the patient had properitoneal accumulation of bladder fluid. This fluid under pressure probably got through the peritoneal incision, and caused a low grade peritonitis.

After excision of the diseased area, the bladder is closed by bringing the edges together with a running lock stitch suture of twenty-day formaldehyd catgut No. 2, leaving a slight opening in the vertex through which the mushroom retention catheter is carried and sutured to the bladder wall with a No. 2, ten-day catgut. In recent cases, I have used the combination interrupted and whipped suture as explained in the description of the closure in the report of Case 9, in which the patient died. This probably controls bleeding better than the lock stitch suture. The abdominal wall is closed except for a small opening to carry the rubber catheter and two cigaret drains, which are introduced down to the bladder wall.

These cigaret drains are removed at the end of forty-eight hours, and daily irrigations of the bladder with 1:10,000 solution of silver nitrate are carried on through the retention catheter, the strength of the solution being increased as the patient recovers. An ounce or two of the solution is introduced and immediately withdrawn through the catheter until several washings are made. This is best accomplished with the patient on her side.

The retention catheter is withdrawn on the tenth to the fourteenth day, after which the irrigations are given through the urethra daily until the bladder is free from infection.

2305 St. Paul Street.

A REPORT OF BACTERIAL VACCINE THERAPY IN A SERIES OF PROSTATIC CASES *

H. C. BUMPUS, M.D.
Fellow of the Mayo Foundation
ROCHESTER, MINN.

Following the appearance of the paper by Cabot and Crabtree,[1] setting forth the favorable results obtained from the administration of colon vaccine in a series of eight prostatic cases, the procedure was adopted from time to time in the Mayo Clinic; but not until May, 1917, was it systematically carried out. At about this time also there appeared an article by von Sholly, Blum and Smith[2] on the therapeutic value of bacterial vaccine in whooping cough, the authors stating that during the administration of the vaccine they were very enthusiastic as to the beneficial results. After their tables had been compiled, however, and carefully compared with the controls, the results showed that the untreated patients had done, on the whole, better than those receiving the vaccine. Similarly, Whittington[3] reported on 230 typhoid cases with careful controls and, interestingly enough, he also felt confident of favorable results until his careful analysis disclosed again that the controlled patients not receiving the vaccine had done better than those so treated.

In undertaking our study, it seemed advisable to give all the patients the vaccine for five months and then to compare the results with those obtained in the previous five months without the vaccine. Thus the element of coincident time would be sacrificed for that of greater numbers, and the result, we believed, would be more accurate. This also seemed just, since the treatment of these cases is now routine and has not varied appreciably during the present year.

TABLE 1.—PROSTATIC RECORD*

Date 1917	Institution	Residual Urine	Catheterized	Permanent Urethral Catheter	Suprapubic Catheter	Wound		Phthalein			Urinalysis				Leukocytes	Hemoglobin	S. B. P.	D. B. P.	Weight	Vaccine	Complication
						Wet	Dry	M.	V.	Blood Urea	Amount 24 Hours C.c.	Specific Gravity	Microscopic Examination: Blood	Microscopic Examination: Pus							
6- 1	Clinic	4	V	....	....	..	..	45	..	..	1,000	1.011	1	3	....	..	160	110	....	....	
2	.....	..	..	....	....	..	..	..	..	..	....	....	..	..	....	..	....	....	160	....	
3	.....	4	V	....	....	..	..	..	..	40	....	....	..	..	1,500	54	....	....	....	....	
4	Sanatorium	..	..	In	....	..	..	..	..	..	....	....	..	..	....	..	....	....	....	50	
5	.....	..	..	In	....	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	
6	.....	..	..	In	....	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	
7	.....	..	..	In	....	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	
8	.....	..	..	In	....	..	..	25	..	..	1,200	1.007	1	2	....	..	....	....	....	100	
9	.....	..	..	In	....	..	..	..	..	..	....	....	..	..	....	..	140	90	....	....	
10	.....	..	..	Out	....	..	..	..	..	35	....	....	..	..	....	..	....	....	....	....	
11	.....	..	..	In	....	..	..	..	..	..	....	....	..	..	1,400	80	....	....	....	100	
12	.....	..	..	In	....	..	..	..	..	..	....	....	..	..	....	..	....	....	155	....	
13	.....	..	..	In	....	..	..	..	..	..	1,500	1.009	2	3	....	..	....	....	....	....	
14	.....	..	..	In	....	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	
15	.....	..	..	In	....	..	..	35	..	..	....	....	..	..	....	..	....	....	....	250	
16	.....	..	..	In	....	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	
17	.....	..	..	In	....	..	..	..	..	..	2,200	1.011	2	2	....	..	120	85	....	....	
18	.....	..	..	In	....	..	..	..	..	25	....	....	..	..	....	..	....	....	....	300	
19	.....	..	..	In	....	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	
20	.....	..	..	In	....	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	
21	.....	..	..	In	....	..	..	40	..	..	2,000	1.014	2	2	1,200	65	135	80	150	....	
22	Hospital	..	..	In	In	..	..	..	..	..	....	....	..	..	....	..	....	....	....	350	Operation
23	.....	..	..	....	In	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	
24	.....	..	..	....	In	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	
25	.....	..	..	....	In	..	..	..	..	..	....	....	..	..	....	..	....	....	....	400	
26	.....	..	..	....	In	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	
27	.....	..	..	....	In	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	
28	.....	..	..	....	In	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	
29	.....	..	..	....	In	..	..	..	..	..	....	....	..	..	....	..	....	....	....	450	
30	Sanatorium	..	..	....	In	..	..	..	..	..	1,400	1.008	4	2	1,400	..	110	80	....	....	Epididymitis
7- 1	.....	..	..	....	In	..	..	..	..	..	....	....	..	..	1,600	..	....	....	....	....	Epididymitis
2	.....	..	..	....	In	..	..	..	..	..	....	....	..	..	1,800	..	....	....	....	500	Epididymitis
3	.....	..	..	....	In	..	..	..	..	..	....	....	..	..	1,400	..	....	....	....	....	Epididymitis
4	.....	..	..	....	In	..	..	..	..	..	....	....	..	..	1,700	..	....	....	....	....	Epididymitis
5	.....	..	..	In	Out	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	
6	.....	..	..	In	....	V	..	..	..	..	....	....	..	..	....	..	....	....	....	500	
7	.....	..	..	In	....	V	..	..	..	..	2,000	1.009	3	2	1,000	70	....	....	....	....	
8	.....	..	..	In	....	V	..	..	..	..	....	....	..	..	....	..	125	70	....	....	
9	.....	..	..	In	....	..	V	..	..	..	....	....	..	..	....	..	....	....	....	500	
10	.....	..	..	In	....	..	V	..	..	..	....	....	..	..	....	..	....	....	....	....	
11	.....	..	..	In	....	..	V	..	..	..	....	....	..	..	....	..	....	....	....	....	
12	.....	..	..	In	....	V	..	..	..	..	....	....	..	..	....	..	....	....	155	....	
13	.....	..	..	In	....	..	V	..	..	..	....	....	..	..	....	..	....	....	....	500	
14	.....	..	..	In	....	..	V	..	..	..	....	....	..	..	....	..	....	....	....	....	
15	.....	..	..	In	....	..	V	..	..	..	....	....	..	..	....	..	....	....	....	....	
16	.....	..	..	In	....	..	V	..	..	..	....	....	..	..	....	..	....	....	....	....	
17	.....	..	..	Out	....	..	V	..	..	..	....	....	..	..	....	..	130	85	....	500	
18	.....	..	..	....	....	..	V	..	..	30	....	....	..	..	....	75	....	....	....	....	
19	.....	..	..	....	....	..	V	25	..	..	2,000	1.010	1	1	....	..	....	....	....	....	
20	Home	..	..	....	....	..	..	..	..	..	....	....	..	..	....	..	....	....	....	....	

* No. A144495; age, 68.

* From the Mayo Clinic.

1. Cabot, Hugh, and Crabtree, E. G.: The Etiology and Pathology of Non-Tuberculous Renal Infections, Surg., Gynec. and Obst., 1916, **23**, 495-537. Crabtree, E. G., and Cabot, Hugh: Colon Bacillus Pyelonephritis: Its Nature and Possible Prevention, THE JOURNAL A. M. A., Feb. 24, 1917, pp. 589-591.

2. Von Sholly, Anna I.; Blum, Julius, and Smith, Luella: The Therapeutic Value of Pertussis Vaccine in Whooping Cough, THE JOURNAL A. M. A., May 19, 1917, pp. 1451-1456.

3. Whittington, T. H.: A Report on the Use of Stock Vaccine in Infection by the Bacillus Typhosus, Lancet, London, 1916, **1**, 759-766.

4. Judd, E. S.: Surgical Treatment of the Prostate, Pennsylvania Med. Jour., 1917, **21**, 72-75.

Further to make the two series as synchronous as possible, all cases in which the so-called two-stage operation was done (that is, suprapubic drainage followed by prostatectomy) have been considered separately. Judd[4] believes that, with the exception of a few selected cases requiring very lengthy drainage to reestablish kidney function, better results are obtainable by means of the permanent urethral catheter than by the suprapubic stab. The former renders a good surgical procedure possible since there is no scar tissue to interfere with ample exposure, thus permitting

injection of the capsule, excision of the gland, suturing of the capsule, and the establishment of complete hemostasis with ease and precision. The operative field, as in other surgical procedures, is clear and accessible. On the other hand, in the presence of an old suprapubic sinus with its accompanying scar tissue, such procedure is impossible, and the operation that is performed tends to become the finger enucleation of the past with its lamentable lack of precision and total disregard of hemostasis. A permanent urethral catheter preoperatively also has the added advantage of rendering the patient accustomed to its presence, and thereby makes its postoperative use less hazardous.

The routine preoperative and postoperative treatment in relation to the vaccine therapy may be readily understood by Table 1, representing a chart such as is used in our prostatic cases. Thus in parallel columns records are kept of the phenolsulphonephthalein, blood-urea, specific gravity, volume, and microscopic and residual urine, together with the blood pressure, hemoglobin and the amounts of vaccine given from day to day. The vaccine was administered twice a week in doses beginning with 50 million, increasing by multiples of 50 to a maximum of 500 million, and continuing throughout convalescence.

Considerable thought was given to the question of the relative merits of stock and autogenous vaccines. The autogenous vaccines seem to have the greater amount of literature to their credit. They are, of course, always fresher and, on the basis of specificity, would seem to be superior. The stock vaccine, on the other hand, is within reach of the greater number of physicians, and is safer, since it is put out by the large laboratories under federal license. Therefore, following the technic of Cabot and Crabtree, we used mixed colon vaccine prepared from various strains of colon bacillus isolated from different urines and prepared fresh once a week.

The administration was subcutaneous and, with two exceptions, no untoward symptoms resulted. The majority of the patients complained of malaise with slight nausea and a little rise of temperature during the first few inoculations. The reactions resembled those usually associated with the administration of typhoid vaccine. Some patients stated that they could feel no effect; the majority regarded it as a necessary evil, and complained most of the localized inflammatory reaction, which lasted one or two days but always wore off. In the two patients mentioned, the reaction was marked enough to require abandonment of the treatment, but never was in any way alarming.

To determine our results, a comparison of the patients treated with vaccine with those not receiving vaccine must be made relative to the incidence of complication manifestly due to infection, namely, pyelonephritis, epididymitis, phlebitis, cystitis and wound infection. The last two conditions it seems best to disregard, as both are almost universally present to a mild degree in such cases, and their relative severity is difficult to use as a matter of careful comparison.

Pyelonephritis is naturally our best criterion. The characteristic symptoms of malaise, accompanied for several days by gradually increasing fever with chills and sweats and a subsequent decline, make it typical; and to one who has been long associated with patients who are having residual urine repeatedly removed, the so-called "reaction" can never be forgotten. Cabot and Crabtree have reported a series of cases in which the colon bacillus was obtained during such reactions, especially during the chills, in pure culture from the blood stream. We attempted to repeat their experiments, and although blood was obtained from six patients, all within an hour of the onset of the chill and from two at its height, in no instance could a growth be obtained, our cultures always being sterile. Owing to the absence of Cabot and Crabtree in Europe, we were unable to ascertain wherein our technic differed from theirs, and so gave up further attempts to isolate the organism. Therefore, to prevent such reactions or to reduce their severity becomes the chief function of the vaccine, and its final sentence in the court of last appeals must be based largely on its ability to produce evidence that the incidence of pyelonephritis is lessened by its administration. It has long been known and fully realized that a patient having undergone such a reaction, although for the time greatly weakened, is a better surgical risk than he who has not. Therefore, a patient having had a reaction and being subsequently treated with colon vaccine may well be likened to one having recovered from typhoid and subsequently receiving typhoid prophylactic treatment, unless the immunity conferred by an attack of pyelonephritis is only transient, as Cabot and Crabtree suggest.

Phlebitis and epididymitis have also been added, together with the length of preoperative treatment and of convalescence, but the main judgment must rest on the pyelonephritis incidence. It seems only fair to state that at the writing of this paper the results had not been compiled, that at first we were very enthusiastic, that subsequently we became skeptical, and that after the completion of Table 2, we discontinued the administration of the vaccine.

TABLE 2.—PROSTATECTOMIES FROM JAN. 1, 1917, TO NOV. 1, 1917

	For All Causes	For Adenofibromatous Hypertrophy		
		Receiving Vaccine	Not Receiving Vaccine	Two-Stage Operation
Number	105	49	24	12
Average age	63	65	67	62
Days prior to operation	31	38	23	279
Days of convalescence	34	32	37	28
Total days treated	65	70	60	307
Pyelonephritis	31%	33%	37%	...
Epididymitis	10%	25%	42%	...
Phlebitis	4%	4%	4%	...
Number of deaths in the hospital	2	1	0	1

Thus it appears that in the series in which vaccines were given, there was 5 per cent. less of cases of pyelonephritis than the controls, and 1 per cent. more than all cases. However, it must not be concluded that the vaccine has produced this decrease; for if the action of the vaccine were specific, a greater reduction than 5 per cent. should have occurred, and the incidence, as compared with all patients operated on, should have been less — not greater. This conclusion is further supported by the 10 per cent. increase in the cases of epididymitis among patients that were treated compared with the controls.

A survey of the length of time the treatment was given is of interest in demonstrating that, although the convalescence of the patients not receiving vaccine is longer by five days, their entire time under treatment is shorter by ten days, showing that the greater the length of preoperative preparation the shorter the con-

valescence. This fact is further emphasized in the two-stage series, when a preparation of several hundred days is given to patients who are the poorest of surgical risks, and leads to a convalescence much shorter than the average. In the two-stage series no attempt was made to chart the incidence of infection, because much of the patients' preoperative time was spent at their homes, where accurate observation was, of course, impossible.

CONCLUSIONS

1. Immunity to pyelonephritis by means of mixed colon bacillus vaccine cannot be produced.

2. The administration of mixed colon vaccine does not markedly reduce the incidence of genito-urinary infection, if it affects it at all.

3. Preoperative attacks of pyelonephritis are the natural means of producing an immunity to renal infection, and their occurrence makes operative risks less.

4. The length of convalescence is usually in inverse proportion to the length of preoperative treatment.

THE OCCURRENCE OF A POSITIVE INTRACUTANEOUS REACTION IN MENINGOCOCCUS CARRIERS*

FREDERICK P. GAY, M.D.
BERKELEY, CALIF.
AND
A. J. MINAKER, M.D.
Assistant Surgeon, U. S. Naval Reserve Force
SAN FRANCISCO

The importance of any facts bearing on meningococcus carriers makes advisable a brief report on our present limited series of observations with an intradermal test in meningococcus carriers, in order that they may be extended by others who are dealing with this problem.

It would probably be impossible to make any conclusive statement at present as to the degree of systemic reaction of healthy individuals who harbor the meningococcus in their throats to this micro-organism. On the degree of this reaction would depend, of course, their resistance to further invasion of the coccus; and concerning this resistance we have conflicting testimony. Temporary carriers may, subsequent to the bacteriologic detection of the meningococcus in their throat, fall ill of meningitis; on the other hand, the majority of detected carriers certainly are themselves unaffected in any serious manner by the parasite they harbor. There is, indeed, certain evidence from the occurrence of meningismus or aborted attacks of meningitis in carriers, as noted by Flack,[1] that an acquired immunity of some efficiency has been engendered in at least some of the carriers which protects them partially from specific meningitis.

It has been generally admitted and specifically proved by one of us (A. J. M.) that the usual tests for antibodies (agglutinins, fixation antibodies) yield no results of significance in positive meningococcus carriers. It seemed of interest, however, particularly in view of the results of the typhoidin test in cases of recovery from typhoid fever, to test the localized intracutaneous susceptibility to preparations of the meningococcus in positive carriers, as compared with those who, on similar bacteriologic examinations from the pharynx, presented no meningococci in detectable numbers. For several months the naval recruits at this station have been systematically examined for the presence of the meningococcus, and positive carriers have been isolated until cultures from them became negative, following appropriate treatment. In connection with this particular investigation, it should be specifically stated that it cannot be assumed that this separation between positive and negative carriers on the basis of a single bacteriologic examination is perfect. It can, indeed, be assumed from work on this subject that among those classed as positive meningococcus carriers were included some individuals who harbored only gram-negative and nonpathogenic chromogens instead of meningococci, and on the other hand that those who were dismissed as "negative" must, in some cases, have harbored meningococci.

The preparation of meningococcus ("meningococcin") used in these experiments was made as follows: Pure cultures of five of the six strains chosen as representative of the meningococcus group by Amoss (Rockefeller strains numbered 1, 10, 30, 44 and 60, including two normal meningococci; two irregulars, and one normal parameningococcus) were grown on 1 per cent. starch agar without peptone for forty-eight hours in ordinary slant tubes. These separate cultures were suspended in sterile saline solution, to each tube 3 c.c. The suspended cultures were mixed, and three volumes of absolute alcohol added. The organisms were flocculated at once and were rapidly centrifugalized, the supernatant fluid removed, and the bacterial deposition thoroughly shaken in the original volume of fresh absolute alcohol. Recentrifugalization, removal of alcohol, and resuspension in ether (distilled over sodium) were performed. After recentrifugalization and decantation, the sediment was dried two days in partial vacuum over sulphuric acid. The hard dried sediment was ground to impalpable powder in an agate mortar and dried again for twenty-four hours as before.

This preparation was then suspended in physiologic sodium chlorid solution containing 0.5 per cent. phenol (carbolic acid). The dose of this suspension, which tends gradually to sediment, employed in the intradermal tests is a volume of 0.05 c.c. containing $\frac{1}{150}$ mg. (0.000006 + gm.) of the dried meningococcus powder. Great care is taken to inject this dose with a fine (27 gage) hypodermic needle so as to leave a persistent bleb under the superficial layers of the skin.

Readings of the reaction were made at the six hour, twenty-eight hour and forty-eight hour periods. A positive reaction consists in a well demarcated areola of from 3 to 7 mm. which is distinctly indurated. The most distinctive results are apparently present at the twenty-four-twenty-eight hour period, and the reaction has usually disappeared in forty-eight hours. We have found this reaction positive between two and three times as frequently in those classified by bacteriologic examinations as positive when compared with those classified negative, thus:

In thirty-one positive carriers, the intradermal test was positive in twenty, or 64.5 per cent.

In thirty-eight negative carriers, the intradermal test was positive in ten, or 26.4 per cent.

---

* From the Department of Pathology and Bacteriology of the University of California and the U. S. Naval Training Station, Yuba Buena Island, San Francisco.

1. Flack, M.: Report on Cerebrospinal Fever in the London District, December, 1915-July, 1916, Special Report of the Indicated Research Committee on Bacteriological Studies in the Pathology, Prevention and Control of Cerebrospinal Fever Among the Forces During 1915 and 1916, London, T. Fisher Unwin, 1917.

The average size of the indurated areola in the negative cases, moreover, was 3.9 mm., whereas in the positive it was 4.75 mm. There is also apparently some evidence that the more persistent carriers gave the more intense reaction.

We present these findings with all reserve as to their significance. It would seem certain that with more extended bacteriologic examinations the relation between a positive intradermal test to the meningococcus and the presence of the meningococcus in the throat would become more evident. The duration of the localized infection would doubtless affect the result. The significance of this relation, if it proves usual, would be to indicate systemic reaction on the part of the carriers, and probably postulate some degree of acquired resistance. Whether this reaction would serve a diagnostic purpose in the detection of meningococcus carriers must only be suggested for future investigations.

THE COMPARATIVE EFFICIENCY OF LOCAL ANESTHETICS *

TORALD SOLLMANN, M.D.
CLEVELAND

Part I. The Investigation of the Clinical Efficiency of Local Anesthetics by Experimental Methods

Criteria of Usefulness.—The substances that have been introduced as local anesthetics are so numerous that it is difficult properly to compare their value. This has been attempted in a considerable number of experimental investigations; but the results have rather confused than cleared the subject. The confusion is due largely to faulty interpretation and unwarranted extension of the results into fields to which they do not apply, or to the failure properly to analyze and reproduce the essential factors of the clinical use of these agents.

The clinical desirability of a local anesthetic is determined on the one hand by its anesthetic efficiency, and on the other hand by the degree of local irritation and by the systemic toxicity.

Systemic toxicity has usually been estimated by hypodermic injection into guinea-pigs. The value of this method is extremely doubtful. The choice both of the animal and of the channel of administration is unfortunate from a clinical standpoint. Rodents depart much more widely than do dogs or cats from human subjects in their response to various poisons. They are, therefore, of questionable value even for the determination of *absolute* toxicity. *Actual* toxicity further involves the rate of absorption. Rapid destruction renders this especially important for the local anesthetics. Most cases of human poisoning arise from application to mucous membranes. The absorption from these, of course, has no relation to the absorption from hypodermic injections in guinea-pigs.

Local irritation is best estimated by clinical application. In fact, clinical experience soon limited the use of the more irritant of the anesthetics, such as stovain, acoin, and the higher concentrations of quinin-urea hydrochlorid.

It seemed advisable to divide the problem, so that the present investigation does not touch further on the questions of irritation and toxicity, but is confined to the subject of anesthetic efficiency.

The methods most widely used for the estimation of anesthetic efficiency consist in observing: (1) the abolition of motor irritability of the frog's sciatic nerve, immersed in the solutions; (2) the failure of the frog, intact or, better, decapitated, to retract the irritated foot, after its immersion in the solution; (3) abolition of the winking reflex after application to the cornea, and (4) abolition of sensation after intracutaneous injection in the human subject.

Many series of determinations have been made with one or several of these methods, the efficiency being judged sometimes by the minimal efficient concentration, and sometimes by the duration of the effect, but often without a clear understanding of the relation of these various experimental methods to the various clinical methods.

Methods of Estimating Anesthetic Efficiency

Local anesthetics are used clinically in several very distinct ways, especially on mucous surfaces (surface anesthesia); by infiltration and hypodermic injection (injection anesthesia); by intraneural injection, and by subdural (spinal) injection.

Each of these clinical methods involves not only the factor of the *absolute* efficiency but also the balance between the penetration to the nerve fibers, and of absorptive removal from the anesthetic region.

SCOPE OF THE VARIOUS EXPERIMENTAL METHODS

Experimental Method	Adaptation to Clinical Problems
Intracutaneous	Absolute anesthetic efficiency Infiltration and injection anesthesia Intraneural injection
Intracutaneous and sensory nerve trunk	Suggestive for subdural injection
Cornea and frog-skin.	Anesthesia of mucous membranes (the frog-skin test being less satisfactory because of the absence of circulation, and the different structure of the mammalian mucosae).

With these considerations in mind, I have employed and compared all these experimental methods, and a further method of direct application to the sensory fibers of the sciatic trunk (testing their excitability by the persistence of the reflexes). The results appear to justify definite conclusions as to the scope of these methods, and as to the availability of the tested anesthetics for clinical purposes.

1. The application of the anesthetics to the motor fibers gives concordant results that are of scientific interest; but these results cannot be transferred to sensory fibers and therefore have little practical value.

2. The sensory methods fall into two classes: (*a*) the application to mucous surfaces, illustrated by the cornea or frog-skin and corresponding to the clinical use in the eye, nose, throat, urethra and bladder, and (*b*) the direct application of the anesthetic to the nerves, either by injection, or by immersion of the exposed nerves. The methods of the second class (*b*) are illustrated, respectively, by the intracutaneous (wheal) method, and by the application to the sensory nerve of the frog.

The intracutaneous method gives the closest approximation to the absolute anesthetic efficiency: it does away entirely with the factor of penetration, since the solution comes into direct contact with the fine nerve-fibers. Absorptive removal of the drugs can be practically obviated, either by making the observa-

* From the Pharmacological Laboratory of the Western Reserve University School of Medicine.
* This investigation was partly supported by a grant from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association.

tions very shortly after injection, or by the addition of epinephrin.

In addition to this scientific value, the wheal method is important because its results can be transferred directly and quantitatively to the clinical method of infiltration and intraneural anesthesia.

Immersion of the nerve trunk into the anesthetic solution, and testing the response of the sensory fibers, seem to approach closely the clinical methods of subdural injection. However, the clinical conditions are complicated by the undetermined factor of the rate of penetration in human spinal nerves; by the absorptive removal, and by the reaction of the cerebrospinal fluid. It is conceivable, therefore, that the order of clinical efficiency for intraneural injection may differ more or less from the experimental efficiency, by either the intracutaneous or the nerve-trunk method. These, therefore, can be considered only as suggestive.

In the light of the foregoing, the scope of the various experimental methods may be defined as in the tabulation.

PART II. SYNOPSIS OF THE RESULTS OF THE INVESTIGATIONS

The methods of experimentation and analysis, as sketched in Part I, have been applied to those local anesthetics that appear to have maintained themselves in clinical practice, and to a few other substances which have not been used extensively in the clinic, but which appear worth investigating from the same standpoint.

I shall present the results mainly in the form of diagrams, dispensing with the details. These can be found in the full papers published in the *Journal of Pharmacology and Experimental Therapeutics*.

EFFICIENCY RATIO OF THE ANESTHETICS

This is shown in Figures 1 and 2. Figure 1 represents the methods that reproduce injection anesthesias.

Figure 1*A* shows the results of the intracutaneous method, indicating the absolute efficiency; it corresponds also to the practical efficiency for infiltration, injection and intraneural anesthesia.

Figure 1*B* shows the results of the direct immersion of the nerve trunk, for the sensory fibers. It probably approaches the conditions of subdural injections (potassium chlorid may behave differently on subdural injection).

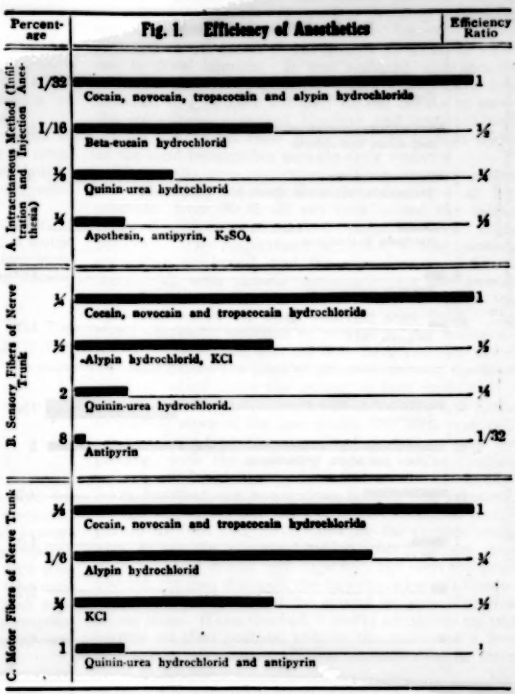

Fig. 1.—Efficiency of anesthetics in injection anesthesias.

Figure 1*C* gives the corresponding results for the motor fibers. They agree fairly well with the sensory fibers.

Figure 2 represents the methods of surface anesthesia.

Figure 2*A* shows the results for the cornea, which is probably fairly representative of mucous membranes.

Figure 2*B* gives the results with the frog-skin, which are in the same class, but are less related to the clinical conditions.

Rapidity of the Onset of Action.—This has no practical importance for infiltration anesthesia, since the action is almost instantaneous with this method. The rapidity is somewhat more significant for surface anesthesia, but even here the differences do not appear to have much practical importance. For the cornea, with the minimal effective concentrations, the anesthetics (hydrochlorids) could be arranged in three groups:

Most rapid: Tropacocain, alypin, quinin-urea.

Intermediate: Beta-eucain.

Slower: Cocain, novocain, holocain.

Duration of Action.—This varies, mainly according to the rate of absorptive removal. It is of some practical importance for surface and subdural anesthesia, but it matters very little for infiltration anesthesia, for in this, the duration can be prolonged at will by the addition of epinephrin (except with tropacocain).

There are no experimental data on the duration of action after subdural injection. The corneal method, however, furnishes direct information for surface anesthesia. The time (in minutes) required for complete recovery after the application of the minimal concentrations producing complete anesthesia was (for hydrochlorids):

From ten to fifteen minutes: cocain, tropacocain.

From twenty to thirty minutes: alypin, beta-eucain, holocain.

Fifty minutes: novocain.

Sixty-five minutes: quinin-urea.

THE EFFECT OF ALKALIZATION

O. Gros found that the addition of alkali increases very noticeably the efficiency of cocain and of the synthetic anesthetics, doubtless because the free anesthetic bases penetrate more readily than the salts. His results were based mainly on the motor fibers of nerve trunks.

My results confirm this potentiation for the motor-nerve trunk, and extend it to the sensory fibers of nerve trunks, to the frog-skin and to the cornea. On the other hand, no potentiation occurred on intracutaneous injection, evidently because this does not require penetration.

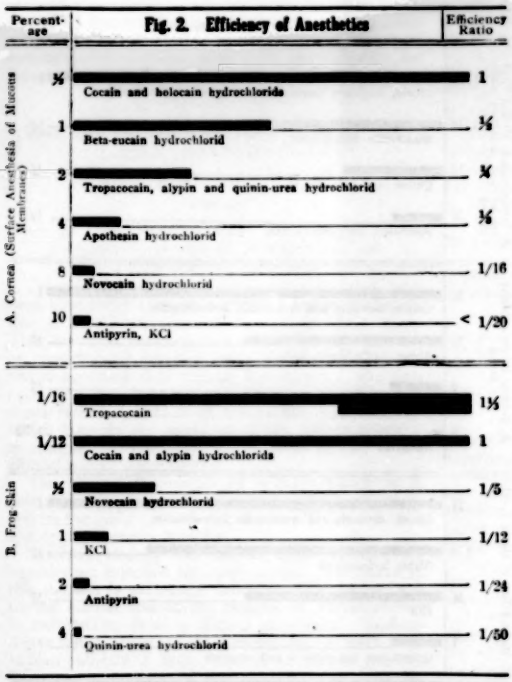
Percentage
Fig. 2. Efficiency of Anesthetics
Efficiency Ratio
A. Cornea (Surface Anesthesia of Mucous Membrane)
½ Cocain and holocain hydrochlorids 1
1 Beta-eucain hydrochlorid ½
2 Tropacocain, alypin and quinin-urea hydrochlorid ¼
4 Apothesin hydrochlorid 1/8
8 Novocain hydrochlorid 1/16
10 Antipyrin, KCl < 1/20
B. Frog Skin
1/16 Tropacocain 1½
1/12 Cocain and alypin hydrochlorids 1
½ Novocain hydrochlorid 1/3
1 KCl 1/12
2 Antipyrin 1/24
4 Quinin-urea hydrochlorid 1/50

Fig. 2.—Efficiency of anesthetics in surface anesthesia.

Accordingly, the addition of sodium bicarbonate, as suggested by Gros, serves no useful purpose for infiltration anesthesia. It may be of some use for intraneural and possibly for subdural injections, and it would be definitely useful for surface anesthesia. For these uses, the anesthetic should be made up in double concentration, and diluted, just before use, with an equal volume of 0.5 per cent. sodium bicarbonate. This increases the efficiency (for the cornea) as follows: Cocain, from one to two times; beta-eucain, two times; novocain, from two to four times; tropacocain or alypin, four times. For instance, a 0.5 per cent. solution of alypin in 0.25 per cent. sodium bicarbonate is just as effective as a 2 per cent. solution of alypin (the hydrochlorid) in plain saline.

This effects a considerable saving in anesthetic. It is not certain whether or not it modifies the toxicity.

Alkali should not be added to holocain or to quinin-urea.

EPINEPHRIN

This was introduced mainly by H. Braun, to prolong the local anesthetic action for infiltration and injection anesthesia. It is notably effective for this purpose. With intracutaneous injection, the anesthesia is prolonged for hours (tropacocain is an exception, since this destroys the vasoconstrictor action of epinephrin). The actual efficiency is not increased, so that there is no true synergism. The epinephrin acts solely by preventing the absorptive removal of the drugs. In practice, this means that the anesthesia can be maintained for the duration of an operation with much less drug, thus diminishing the chances of systemic toxicity, and obviating waste of anesthetic. The addition of epinephrin (about 1: 50,000) is therefore advised for all injection anesthesias (except tropacocain). On the other hand, epinephrin is quite useless for surface anesthesia; indeed, it rather diminishes the penetration and therefore the efficiency of the anesthetics on mucous membranes (cornea). I also doubt whether it would be of service in intraneural or subdural injections.

COMBINATIONS OF ANESTHETICS

The efficiency of mixtures of the local anesthetics corresponds to more or less complete summation, without any potentiation. In other words, if two solutions of different anesthetics are diluted until they are "just effective," then a mixture of the two solutions will also be "just effective"—no more and no less.

A single exception to this rule exists, namely, the potentiation of potassium with certain of the other anesthetics, discovered by Hoffmann and Kochmann. I have confirmed this for motor paralysis; but I cannot confirm it for sensory anesthesia. It has, therefore, no practical importance.

There would be little or no advantage in mixing the synthetic anesthetics with each other, except, perhaps, in mixing any of the synthetic anesthetics with quinin-urea, or with potassium chlorid. These are rather too feeble by themselves; but when they are used in nonirritant concentrations, being employed to take the place of a part of the synthetic anesthetics, the toxicity of the latter is correspondingly reduced.

SUMMARY

These investigations of the local anesthetics justify the following conclusions, as to their suitability for clinical uses, mainly from the standpoint of efficiency:

1. For the anesthesia of mucous membranes, the relative efficiency is shown in Figure 2*A*. The numbers at the left show the percentages needed to equal 0.5 per cent. cocain hydrochlorid. Cocain, beta-eucain, alypin and tropacocain are the most useful; quinin-urea hydrochlorid is fairly active. Apothesin,[1] novo-

1. Apothesin is a new proprietary anesthetic, said to be the cinnamic ester of gamma-diethylamino propyl alcohol hydrochlorid. It was obtained through the kindness of Dr. McCoy, U. S. Public Health Service.

cain and potassium chlorid are relatively inefficient. Alkalization increases the efficiency from two to four times. The solutions of the anesthetic salts may therefore be mixed with an equal volume of 0.5 per cent. sodium bicarbonate, without loss of efficiency, and with a saving of one half of the anesthetic. The mixtures, however, do not keep well, and should be recently made.

The addition of epinephrin does not increase the efficiency, and is probably useless.

2. For infiltration and injection anesthesia, the relative efficiency is shown in Figure 1*A*. Cocain, novocain, tropacocain and alypin are about equally efficient. Beta-eucain and quinin-urea hydrochlorids are intermediate; apothesin and potassium sulphate (or chlorid) are relatively inefficient.

The efficiency is not increased by alkalization. Epinephrin greatly prolongs the action, and should always be added (except to tropacocain).

The anesthetic action of potassium sulphate or chlorid is not great enough to be of real value.

A 1 per cent. (that is, isotonic solution) would be equivalent to about 0.125 per cent. of cocain or novocain. However, it may well be used in place of sodium chlorid for making anesthetic solutions, as suggested by Braun.

Several of the synthetic anesthetics can completely take the place of cocain. In view of this fact, it would be feasible to prohibit entirely the importation, manufacture, sale and use of the habit-forming cocain, except for scientific purposes.

FLUID SUBSTITUTES FOR TRANSFUSION AFTER HEMORRHAGE

FIRST COMMUNICATION *

PEYTON ROUS, M.D.
AND
GEORGE W. WILSON, M.D.
NEW YORK

There exists at present a great and urgent need for an injection fluid that can be satisfactorily employed instead of blood for transfusion in cases of hemorrhage. It is common knowledge that casualty clearing stations, after a "push," are crowded with men who have lost too much blood to be operated on, who cannot be revived by means of salt solution and supportive measures, but who would undoubtedly respond to transfusion. For the latter neither time nor donors are available.

A number of fluid substitutes for transfusion have recently been suggested. Our work relates, first, to what may be expected of a substitute, and, second, to the relative merits of some of the substitutes proposed.

THE LIMITS OF SUBSTITUTION FOR HEMOGLOBIN

That severe acute hemorrhage, even to apparent exsanguination, does not entail permanent damage to the organism is shown by the rapid and complete recovery that usually follows transfusion. May one expect some such recovery when another fluid than blood is used? Or is this essentially dependent on the new supply of corpuscles and plasma?

The importance of the plasma has been investigated by Abel, Rowntree and Turner,[1] who demonstrated that the healthy body will withstand and quickly repair great losses of the fluid. The ability to withstand similar losses of red cells only — or, more properly speaking, of functioning hemoglobin — has not been inquired into. This point was the first taken up in our work. Animals have been bled repeatedly, and the blood bulk at once restored by the injection of compatible plasma.

Rabbits were used because their rapid exsanguination and injection involves only minor operative procedures. All possible blood was taken by cardiac aspiration with strong suction, and then through an ear vein warmed plasma was run in containing the minimum of sodium citrate that would prevent clotting (about 0.5 per cent.). At the first bleeding, somewhat more than half of the total calculated blood bulk (5.5 per cent. in the rabbit[2]) was usually obtained in from one to three minutes. It was replaced with exactly the same amount of plasma. After a wait of a few minutes, to give time for part of the citrate to leave the circulation, a second bleeding and injection was carried out. Thus from three quarters to four fifths of the total hemoglobin was abruptly replaced.

The results were surprising. When the hemoglobin was reduced by not more than three fourths — as, for example, from 80 to 20 per cent. — and the rabbit replaced in its cage, no marked change was noted in its behavior. The respirations were for a few minutes somewhat quickened, and the ears for many hours were cold, with vessels contracted; yet the animal moved about normally, and immediately after the operation would eat when supplied with food. The blood gradually returned to normal in the course of the next few weeks, and the only inconvenience noted was that during the days of severest anemia, the least exertion would cause the animal to pant heavily.

A very different condition was seen after four fifths or slightly more of the hemoglobin had been removed. On its release from the operating board, the animal lay panting, with the accessory muscles of respiration actively employed, and made at first no attempt to rise. Soon, however, the respirations became less frequent, though still rapid, and when touched the animal would get on its feet. At first, following the outside stimulus, it sat like a normal rabbit with head up, ears back, and legs drawn well together; but soon the head nodded, the ears drooped, the legs sprawled out irregularly, and if undisturbed the animal sat somnolent for a long time. When touched it would straighten up and assume an alert posture, only in the course of a few minutes to relax again. These animals died in from three to six hours.

We have spoken of proportional amounts of hemoglobin rather than of absolute quantities, because of indications that, within limits, it is the proportional loss that most affects the results. A rabbit with an initial hemoglobin of 80 per cent., Sahli, will withstand a reduction to 20 per cent., whereas this is fatal to an animal having 100 per cent. to begin with. The symptoms described can scarcely be due to the citrate in the plasma, since this was varied freely in cases yielding similar results, and because, furthermore, the same effects were obtained when a noncitrated fluid, namely, horse serum, was used instead of plasma. The lowest absolute hemoglobin percentage to which we have reduced an animal without death was from 17 to 18 per cent., Sahli. Horse serum was the fluid

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. Abel, J. J.; Rowntree, L. G., and Turner, B. B.: Jour. Pharmacol. and Exper. Therap., 1914, **5**, 625.

2. Boycott, A. E., and Douglas, C. G.: Jour. Path. and Bacteriol., 1909, **13**, 256.

used to replace the blood withdrawn. In this instance, the hemoglobin value did not rise during several days.

The ability of rabbits in which anemia is gradually produced, as well as that of patients with chronic anemia, to survive with only 20 per cent. of hemoglobin or less is usually ascribed to gradual bodily adjustments. But the present experiments show that in reality the body can tolerate an abrupt change to a very low figure.

Such great losses of hemoglobin as were accomplished in our rabbits are never brought about by hemorrhage. As is well known, a loss of slightly more than half the total blood bulk is usually fatal to man. This fact is true also of rabbits. The loss of hemoglobin is never so great as that of blood bulk, for the reason that as hemorrhage proceeds the blood is diluted with fluid previously extravascular. The dilution occurs so rapidly that the last blood to flow from a cut carotid is appreciably thinner than the first. Thus a relative retention of hemoglobin is brought about. This point is well indicated in the recent work of Depage and Govaerts.[3] They studied the hematologic indications for transfusion on wounded soldiers, and state that when wounds do not involve the abdomen, and the red cells fall below 4,500,000 per cubic millimeter in the first three hours, or 4,000,000 in eight hours, or 3,500,000 in the first twelve hours, the patient will probably die unless tranfusion is performed. In such instances, the full loss of hemoglobin is doubtless not indicated by the counts, since there is an attendant loss in blood bulk. Yet, even allowing for this, the total reduction in hemoglobin is not sufficient to account for the impending death. The amount of the pigment retained in the body under the circumstances of the most severe acute hemorrhage is always far above that which, as the present experiments have shown, will support life. The objection may be made that under the circumstances of clinical hemorrhage, no such immediate replacement of blood bulk occurs as in our bled and infused rabbits, and that the losses of hemoglobin may not be so well supported by animals rendered acutely anemic for some hours. But, as has already been pointed out, the results of transfusion in exsanguinated individuals show clearly that ordinary hemorrhage does not of itself produce lasting injury.

The view, therefore, seems justified that, however desirable it may be, it is not essential to supply blood corpuscles in ordinary cases of *acute* hemorrhage. Even in the worst example, the body retains at least twice the minimum functioning hemoglobin which, if other factors are favorable, will support life.

THE LIMITS OF SUBSTITUTION FOR PLASMA

To determine the limits of possible substitution for plasma is difficult for the reason that the body possesses immediate fluid reserves as well as the ability to manufacture fresh plasma in a few hours. This, of course, is not the case with hemoglobin. Only after the depletion of the fluid reserves does an injected liquid play an essential part in an animal's recovery. And even then the results must be discounted because of the organism's activity in furnishing for itself a new plasma. The limits of substitution are directly dependent on the time taken for the plasma's removal and that allowed for recovery.[4] When both are generous, the possibilities as regards plasma withdrawal and substitution are practically unlimited. Unfortunately, in cases of hemorrhage the depletion is extremely rapid and involves both cells and plasma. New fluid is required, not merely to replace the plasma, but also to make up the total blood bulk.

BLOOD BULK AND BLOOD SUBSTITUTES

Hemorrhage depletes, not merely the blood, but the fluid reserves as well—a fact long recognized by physiologists. The results may be clearly seen in rabbits bled at intervals of fifteen minutes. The effect on a good sized animal of a first bleeding of 20 c.c. is to lower the blood pressure only temporarily. A second similar bleeding causes a greater fall and a somewhat slower recovery, but soon the normal is reached again. A third bleeding of only 10 c.c. may now bring about a great drop in pressure, from which there is practically no return. In such an instance, not only have all physical means of adjustment, such as vasoconstriction, been pressed into play, but the fluid reserves have been so exhausted that nothing is forthcoming to replace the blood bulk. Under such conditions, the effects of a substitute for the blood can be directly observed.

Unfortunately, the fluid reserves and other compensatory mechanism differ so much in animals of the same size that often one cannot tell how far recovery is dependent on the character of an injected fluid and how far on the organism's natural resiliency. For this reason, as well as to save time, we have employed the rapid exsanguination by suction already referred to. Half or more of the total blood—and blood not diluted as when it flows from a vessel—is rapidly removed and replaced through an ear vein with the fluid under test. Aspiration from the femoral artery has proved safer than that from the heart, and quite as rapid. A large blunt needle is thrust far up the vessel, and then suction applied. The blood pressure is recorded from the carotid artery with mercury manometer and kymograph.

The ability of plasma to replace whole blood was first studied. When more than half of the total calculated blood volume had been taken, and the carotid pressure had fallen to a physiologic zero (from 10 to 20 mm. of mercury), it was instantly and permanently restored to the normal by the injection of an equivalent quantity of plasma. This was the case, too, when horse serum was used. A saline solution, on the other hand (Ringer's fluid), brought about only a slight, transient recovery of the pressure. Sometimes, nevertheless, the animal survived for the half hour or more necessary for the successful utilization of its own fluid resources.

The reasons for the failure of saline solution, as thus indicated, have been variously given, but the most important, undoubtedly, is that it leaves the vessels for the tissues and the urine almost as soon as it is injected. The same is true to a less extent of many fluids better than salt solution, but not so good as plasma. After the injection of such a fluid, the blood pressure may be immediately restored to normal; but it does not remain there. Almost at once the pressure begins to fall as the fluid leaves the vessels, and only after a greater or less period, as the organism itself furnishes a blood substitute, does the fall cease and the pressure rise gradually to normal. If the fluid is a fairly good substitute for blood, the depth of the curve expressing the pressure changes is not great

3. Depage and Govaerts: Presse méd., 1917, **25**, 602.
4. Hurwitz, S. H.: Intravenous Injections of Colloidal Solutions of Acacia in Hemorrhage, The Journal A. M. A., March 3, 1917, p. 699. Abel, Rowntree and Turner (Footnote 1).

(from 15 to 20 mm. of mercury), and return to the normal pressure is complete within one-half hour.

THE RELATIVE MERITS OF BLOOD SUBSTITUTES

Gelatin-containing fluids have often been used as blood substitutes. Hogan[5] advises 2.5 per cent. gelatin and Bayliss,[6] 6 per cent. We have tested several fluids made with gelatins which answered to Hogan's requirements for purity and ability to "gel." They were made up carefully according to his formula, and rabbits were used as in his experiments. But though these solutions undoubtedly restored blood pressure better than did salt solution, their effect was soon lost, the pressure falling off in the course of fifteen or twenty minutes nearly to the level to which the bleeding had originally reduced it. In these results there is no necessary contradiction to Hogan's findings. He took the rate of secretion of urine as the index of the ability of his solution to stay in the vessels, and found that it was not increased. But, as Bogert, Underhill and Mendel[7] have shown, loss of fluid into the tissues is often far more important for blood volume than that through the kidneys.

Larger concentrations of gelatin up to 6 per cent. act proportionately better than Hogan's solution. In some instances, 4 per cent. gelatin restores blood pressure permanently, but in others it does not. Six per cent. gelatin, in our experience, is always effective.

It has been interesting to determine the effects of hypertonic glucose and dextrin solutions, since these have been advised to draw fluid into the circulation. Under most circumstances, a pump for continuous injection, such as that employed by Erlanger and Woodyatt,[8] will not be available, so we have contented ourselves with immediate large injections. Eight per cent. dextrin (Merck) in salt solution, and 5.4 per cent. glucose in Ringer's solution — a fluid with twice the tonicity of blood — have been found to exert only a slight transient effect to raise the blood pressure in the bled rabbits.

Bayliss, who originally advised either 6 per cent. gelatin or 7 per cent. gum acacia as blood substitutes, has recently advocated the latter,[9] and for good reasons. It can be sterilized by boiling, whereas the autoclaving of gelatin is necessary in order to kill tetanus spores. It is more uniform in constitution than commercial gelatin, and, being protein free, it does not induce anaphylaxis or the severe reactions that often follow the latter. We can confirm Bayliss' statement that 7 per cent. gum acacia will permanently restore blood pressure to normal.

At the British front, where acacia solutions are now used, there has been an avoidance of the higher percentages in favor of a 2 per cent. fluid, and the results, while encouraging, have not been convincing. The reason for this is well seen in our experiments. A 2 per cent. acacia solution, like Hogan's fluid, at first raises the pressure to normal, but it drops off within a few minutes to the danger point. Four per cent. is more satisfactory, as the secondary drop in pressure, being slow, is better compensated. But neither the 4 per cent. nor the 5 per cent. solution recommended by Hurwitz[4] is effective in all cases. Six or 7 per cent. is required if one is to bring back the normal pressure in an organism depleted of its fluid reserves.

Mention has already been made of horse serum. The indications are that it would be an effective blood substitute, except for the risk of inducing sensitization or causing anaphylactic shock. In nonsensitive animals (rabbits, dogs), it acts as well as the plasma of the same species. But large quantities of it bring about serum sickness. A rabbit that had three quarters of its blood replaced by horse serum died on the sixth day, and showed extensive liver necroses. In a sensitive man, as we have had opportunity to observe, the injection of 2 c.c. induced a fall of twenty points in the systolic pressure, which was repaired only after several hours. In a nonsensitive man, the effect of the injection of 90 c.c. was to raise the pressure slightly for a few minutes. Horse serum injections, under the conditions of the battlefield, might well save many lives, but they would probably cause death in some cases.

BLOOD SUBSTITUTES AND THE INDIVIDUAL CASE

The needs for a blood substitute may in individual cases be widely different. When the hemorrhage has been rapid and has been completely checked, almost any harmless isotonic solution will tide the patient over. It matters little that the fluid will soon leave the vessels, for the patient's own fluid reserves are almost intact, as is his ability to manufacture a plasma rapidly. At the other extreme are those instances in which the blood has been draining steadily away and there remains in the body no source of an immediate restoration of fluid. Here half-measures cannot suffice. A fluid must be furnished which will take the place, over many hours, of the lost blood bulk. Except for the blood or plasma of other human beings, fluids containing from 6 to 7 per cent. of gum acacia are the best at present available for the purpose. Their use when death threatens and transfusion cannot be performed is worth the taking of risks. Intermediate cases can undoubtedly be much helped by a 2 or 3 per cent. acacia solution or perhaps by Hogan's solution. In view of our ignorance of the after-effects of these foreign substances, it is certainly advisable not to inject more than the needs of the case may demand.

Further attempts to devise blood substitutes may be expected in the next few months. The fact may, therefore, be pointed out that it is not vital to success, as Bayliss has assumed, that a fluid substitute have the viscosity of whole blood; for plasma, which has only about half this viscosity, substitutes perfectly. Indeed, the advisability of raising the blood pressure after hemorrhage beyond a certain point by making an injected fluid difficult to push through the vessels may well be questioned. In order that a diminished number of red cells may carry on the body's normal work, it would seem that a brisker circulation is requisite.

Our experiments have brought out no indication of a special stimulating influence on blood pressure of either plasma or serum. That these fluids possess special characters which render them preferable to any possible substitute is obvious. But the important point is that their use is not essential.

SUMMARY

The animal organism will withstand an abrupt reduction in hemoglobin to almost, if not quite, the low percentage that is tolerated in chronic anemia. Roughly speaking, three quarters of the total hemo-

5. Hogan, J. J.: The Intravenous Use of Colloidal (Gelatin) Solutions in Shock, THE JOURNAL A. M. A., Feb. 17, 1915, p. 721.
6. Bayliss, W. M.: Proc. Roy. Soc., B, **89**, 380.
7. Bogert, L. J.: Underhill, F. P., and Mendel, L. B.: Am. Jour. Physiol., 1916, **41**, 219.
8. Erlanger, Joseph, and Woodyatt, R. T.: Intravenous Glucose Injections in Shock, THE JOURNAL A. M. A., Oct. 27, 1917, p. 1410.
9. Bayliss, W. H.: Arch. méd. belge, 1917, **70**, 793.

globin may be safely removed, provided the blood bulk is maintained. If four fifths is suddenly withdrawn, the animal becomes apathetic, shows symptoms of air hunger, and dies in a few hours. The amount of hemoglobin which remains after fatal acute hemorrhages is far above the minimum requirement of the body. As Abel and his co-workers have shown, great losses of plasma are soon repaired by the organism, if only the blood bulk is maintained. Taken together, these facts show that however desirable transfusion may be (especially to furnish the elements needed in clotting, to lessen acidosis, to improve oxygenation, etc.), it is not essential to recovery from even the severest *acute* hemorrhage, if only the blood bulk can be restored in other ways.

Of the several fluid substitutes for transfusion which have recently been suggested, all are preferable to salt solution. Bayliss' 7 per cent. gum acacia solution is up to the present the best, and its use should save life in many instances. In less urgent cases, from 2 to 3 per cent. acacia solution, or Hogan's 2.5 per cent. gelatin solution, are to be preferred to salt solution. But these fluids leave the circulation relatively soon, and when the organism has been drained of its fluid resources their injection restores the blood pressure to the normal level for only a few minutes. Permanent betterment cannot be expected in cases of severe hemorrhage with solutions containing less than from 5 to 7 per cent. gum acacia.

It is not essential that a blood substitute should possess the viscosity of whole blood.

FATAL RESULT FOLLOWING INJECTION TREATMENT OF HEMORRHOIDS

H. J. SPENCER, M.D.
House Physician, New York Hospital
NEW YORK

The grave complications frequently arising from seemingly simple methods employed in the treatment of dispensary patients leads to the presentation of one such treatment and its undesirable result.

The rectal mucosa cannot be effectively freed from pathogenic organisms, which may be carried deeper by a hypodermic needle. The liquid injected reduces tissue resistance, and furnishes a good medium for the growth of organisms. If an anesthetic agent is injected, pain and the defensive reflexes it arouses are abolished. Hence, the mechanical spread of the infection is unretarded. The patient's walking, jolting in cars and sitting in chairs all aid in spreading the infection. Dispensary patients, therefore, are subjected to a double risk.

REPORT OF CASE

History.—For ten years, a chauffeur, aged 38, had had external and internal hemorrhoids, which had bled six years. He was constipated. January 31, in a dispensary, three large internal hemorrhoids were injected with quinin and urea hydrochlorid. They later sloughed off. That night, he had a severe headache; the next, a severe chill. These symptoms recurred to the end. Pain in the right hypochondrium commenced the fourth day.

The sixth day, February, 5, while having a chill, he was admitted to the hospital, obviously acutely ill. His condition was septic. There were no signs of jaundice. Over the right lung, patches of harsh breathing, modified voice, and râles were heard. Examination of the heart was negative. Tenderness was elicited over the lower half of the abdomen and over the right hypochondrium. Neither the liver nor the spleen was palpable. Rectal examination revealed several external hemorrhoids and a few ulcerated, tender, sloughing, internal hemorrhoids. The blood count revealed: white blood cells, 12,400; polymorphonuclear neutrophils, 93 per cent.; lymphocytes, 4 per cent.; transitionals, 3 per cent. Blood pressure ranged between 72 and 118 systolic.

The seventh day, February 6, the liver and spleen were palpable, and the tenderness was greatly increased. The eighth day, a light jaundice appeared. It increased rapidly. The patient's condition appeared more septic. Liver dulness reached the fourth space anteriorly, the sixth in the mid-axilla, and the scapular angle posteriorly. A needle inserted into the right eleventh space posteriorly found no pus. Two blood cultures were taken, the first February 6, directly into plain broth and agar plates, and the second, February 9, into sterile water, the sediment being centrifuged and planted in glucose broth. Both cultures remained sterile. The patient died the twelfth day, February 11.

Necropsy.—The diagnosis at necropsy was: ulcers of the rectum, following necrosis of internal hemorrhoids; phlebitis of the prostatic and possibly of the hemorrhoidal veins; thrombosis of the same veins; multiple abscess of the liver; septic infarct of the lungs, chronic pulmonary tuberculosis, which, however, was obsolete; parenchymatous degeneration of the heart, liver, kidneys, etc., and infection by *Bacillus acrogenes-capsulatus.*

Following is a summary of the detailed report:

The skin and conjunctivae were icteric. The heart was normal except for the fact that the myocardium was pale, grayish pink, opaque, soft and friable. There were no focal lesions. The chambers contained fluid blood intermingled with gas bubbles. Frothy blood escaped from the large thoracic vessels. The lungs were congested. There was a large septic infarct located in the left upper lobe anteriorly. Several small hemorrhagic foci with necrotic centers were found in the right lower lobe. The spleen was enlarged, weighing 11½ ounces, and though it showed a normal consistency, the capsule was doubled in thickness. The cut section was dark, brownish red, and the trabeculae and malpighian bodies were indistinct. The kidneys, weighing, respectively, 6 and 6½ ounces, were pale, grayish pink. After being stripped of the capsule, they were smooth, and revealed a normal consistency, a thickened cortex, and indistinct markings. The periprostatic plexus veins appeared dilated, and a creamy pus escaped when they were cut across. The rectal mucosa showed three sloughing ulcers each about 1 cm. in diameter. The hemorrhoidal veins were small and apparently clear. The pelvic and abdominal veins showed no thrombophlebitis, but they contained fluid, frothy blood. The liver was enlarged, weighing 6 pounds and 7 ounces. It was soft and friable, and was brownish red. Scattered throughout the organ were irregular, large, greenish-yellow, necrotic, fairly circumscribed foci, with softened centers. The nodules were as large as walnuts, and on pressure yielded a purulent discharge. Those just beneath the capsule did not project above the surface of the liver. The normal liver markings were gone. Frothy blood was found in the large veins of the liver. The gastro-intestinal tract was negative, and the stools were gray.

An emulsion of pus from one of the liver abscesses was injected into a rabbit, which later died. A beginning abscess in its liver yielded encapsulated bacilli with the characteristics of *B. acrogenes-capsulatus.* A blood culture from the rabbit's heart gave a pure culture of the same organism.

8 West Sixteenth Street.

Wounds in the Trenches.—In modern trench warfare, about 75 per cent. of the wounds are produced by shell-fire and 20 per cent. by rifle and machine-gun fire, this proportion, of course, varying with the nature of the action. In 100 wounded there will be: 10 to 20 head wounds, 5 to 10 chest wounds, 6 abdominal wounds, 60 wounds of extremities.—Lieut.-Col. T. H. Goodwin, R. A. M. C.

Clinical Notes, Suggestions, and New Instruments

A NEW BLOOD TRANSFUSION METHOD

PHILIP H. KREUSCHER, M.D., CHICAGO

The transfusion of blood has been rightfully considered a major procedure. This circumstance is due to the facts that first, the operation, until very recently, was done only in the greatest emergency; second, the technical details could be mastered only after repeated trials; third, when not done properly and carefully in every detail, the operation often proved fatal.

Appliance for blood transfusion without destruction of the vein.

From time to time, the methods have been simplified until, at present, the physician is told that he may collect a quantity of blood from the donor, and after adding a small quantity of sodium citrate solution, he may carry it from his office to the hospital and inject the modified blood into the vein of the recipient. This method, which is said to have given good results in the hands of some men, is open to serious objection. It would seem to me that the most rational procedure would be the transfusion of the fresh warm blood of the donor which has been proved compatible with the blood of the recipient.

Every one who has done numerous transfusions by the ordinary methods finds that the most suitable veins in both patients have been destroyed after the second or third operation. It occurred to me that a method could be devised by which blood could be transferred from one patient to another without destroying the vein, and by which the operation could be converted from a major operation of blood transfusion into a minor procedure. An appliance that will answer the requirements of such a method is shown in the accompanying illustration.

The glass collecting tube, which holds 500 c.c. of blood, has a tip especially constructed so that a short, small caliber steel or platinum needle, of the type shown at *B* and *C*, may be slipped on it, precisely as the needle is attached to the ordinary Lüer syringe. The double-action bulb and the glass mouthpiece are attached to the distal end of the tube. Either the bulb or the tube may be used for aspirating and expelling the blood. If the operator wishes to use the bulb, the tube leading to the glass mouthpiece should be securely clamped. After the desired amount of blood has been drawn into the tube, the bulb is reversed and by the ordinary repeated compression of the bulb, the blood is forced out of the tube. In other words, the double-action bulb may act as a suction or as an expelling apparatus. If the surgeon desires to aspirate the blood by mouth suction, the tube leading to the bulb is clamped. The dilated portion of the glass mouthpiece should contain a small quantity of sterile absorbent cotton so that the mucus from the operator's mouth cannot pass into the collecting tube.

The best method of sterilizing the glass tube is as follows: Several large pieces of paraffin are placed in the collecting tube, and the tube is put into the ordinary dry sterilizer in a horizontal position, laid, according to custom, between other bundles of dressings that are to be sterilized. When the sterilization is complete and the tube is still warm, the operator or nurse grasps the tube with sterile gloves, and after a few rapid rotations, the entire inner surface is coated with the paraffin. It is important that the coating extend throughout the tube from the tip to which the needle is attached to the distal end to which the aspirating apparatus is connected.

I wish to call special attention to the fact that it is possible to coat the lumen of the needles with a thin film of paraffin. This might be desirable when large quantities of blood are to be transfused.

It is most essential that the lumen of the needle be of exactly the same size as the lumen of the glass tip to which it is attached. Between the tip of the tube and the lumen of the needle there must be no dead space in which the blood could clot. We have, then, a smooth, uninterrupted lumen extending from the tip of the needle to the place where the collecting tube dilates.

If supplied with a close-fitting obturator, as at *A*, the needle is useful when the transfusion is to be made into a very small vein. In this case the needle, with the obturator in position, is introduced by the operator into the vein of the recipient before the actual operation is begun, or by an assistant while the operator is collecting the blood from the donor. The obturator, which fits closely and extends to the tip of the needle, will not permit a blood clot to form. When the surgeon is ready to inject the blood, the obturator is removed, the tip of the collecting tube is attached, and the blood is introduced.

The tip of the collecting tube is so constructed that the transfusion may be done according to the old methods without the operator's attaching the needles at all.

SUMMARY

We have, then, a method with all the advantages of the former procedures and the following additional advantages:

1. It makes blood transfusion a minor operation.
2. The same vein in both the donor and the recipient may be used many times.
3. The needle is introduced through a minute opening in the skin over the vein.
4. The detachable needle with the obturator makes possible transfusion into a vein of very small caliber.

2526 Calumet Avenue.

A SIMPLE APPARATUS FOR COLLECTING URINE FROM MALE INFANTS

OSCAR M. SCHLOSS, M.D., NEW YORK

The use of an ordinary test tube to collect urine from male infants has several disadvantages. Unless the closed end is strapped firmly to the thigh, it is apt to be higher than the penis, and as a consequence the urine leaks out as fast as it is voided. Moreover, the mouth of the test tube must be fastened so firmly that the lower edge may cause considerable pressure.

Apparatus for collecting urine from male infants.

These difficulties are obviated by a tube made as illustrated.[1] Another advantage is that the infant may change his position to a considerable degree without loss of the contained urine. The tube may be secured by means of a special band with abdominal and perineal straps, by means of floss around the abdomen and thighs, or by adhesive plaster.

Such tubes have been in use on Dr. L. E. La Fétra's service at Bellevue Hospital for about three years, and have been very satisfactory.

172 West Seventy-Ninth Street.

1. These tubes are made by Eimer and Amend, Third Avenue and Eighteenth Street, New York.

THE PROBABLE ASSOCIATION OF AMINO-ACIDURIA WITH BENCE-JONES PROTEINURIA

CHARLES E. SIMON, B.A., M.D., BALTIMORE
Professor of Clinical Pathology, University of Maryland School of Medicine and the College of Physicians and Surgeons

In the course of certain investigations regarding the nature of the so-called Bence-Jones protein, I made the incidental observation that the urine from such a case gave a most intense ninhydrin reaction. The color was a rich Burgundy, however, and not the reddish violet that is noted in the Abderhalden pregnancy test. The urine in question had been preserved for a number of years with thymol, and the question naturally arose whether a fresh specimen of urine containing the Bence-Jones protein would give the same reaction. Normal urines, it may be mentioned in passing, give rise to no color change. The opportunity for such an examination was offered soon after, and it was found that the fresh urine from the second case also turned a deep Burgundy on boiling with ninhydrin. In order to determine whether the reaction was due to the protein itself or to an associated substance or substances, a solution of the isolated Bence-Jones protein was treated in the same manner. There resulted a steel blue of moderate intensity without the slightest trace of a reddish tint. If, on the other hand, the Bence-Jones urine was dialyzed against running water, the reaction disappeared, while the dialysate was found to give the same reaction as the original specimen of urine.

Since the Bence-Jones protein itself is not dialyzable, we are forced to the conclusion that the color reaction must be due to the presence of a substance which accompanies the protein; and as this substance is absent in normal urines, as well as in cases of ordinary albuminuria, the question naturally suggests itself whether any relation exists between it and the Bence-Jones body. The fact that the reaction was observed in both cases of Bence-Jones proteinuria, which after all is of rare occurrence, and the only ones that have been available for study, coupled with the observation that a like color changes on boiling with ninhydrin, has not been encountered in other urines—either normal or pathologic—suggests that the coincident presence of the protein and the reacting body or bodies may not have been accidental.

From our knowledge of the character of the ninhydrin reaction in general, and the fact that none of the known constituents of normal urine give this reaction, and that the reacting substance in the Bence-Jones urine is readily dialyzable, we conclude that free amino-acids or relatively simple peptids must be present in such urines and responsible for the color change in question. In this connection, it is interesting to note that in the first Bence-Jones urine referred to above, which had been thymolized and kept for a number of years, the quantity of the Bence-Jones protein, as measured by the width of the protein ring on application of the cold nitric acid test, and the degree of turbidity which resulted on the application of heat, has gradually diminished, and at the time of writing only a slight reaction is obtainable, while the ninhydrin reaction has coincidently disappeared. This observation suggests, on the one hand, that the reacting substance is not stable, and on the other that if it is of peptid nature, its constituent amino-acids must be in part of the type which does not give the usual color reaction with ninhydrin.

Since prolin gives a yellow color, and pyrrolidin carbonic acid no color reaction at all, these two would suggest themselves as possible components of a peptid of this order, possibly in combination with histidin, which appears to be the only amino-acid which gives a Burgundy color on boiling with ninhydrin. Or, if a single substance is responsible for the color change, the latter would appear to be the most likely.

Unfortunately, a more detailed study of this question has not been possible thus far, for want of material; but the observation in itself seems of sufficient importance to warrant its publication at this time, in the hope that it may attract the attention of some worker who is so fortunate as to have a Bence-Jones case at hand.

A NEW NASAL SPLINT

OTTO J. STEIN, M.D., CHICAGO

The general practitioner as well as the rhinologist can find use for a good intranasal splint to hold cotton or gauze in contact with the septum. The cotton can be dusted with a powder, moistened with a liquid, or impregnated with a salve, and accurately held in contact with the membranes. It is useful in the treatment of fractures of the nose, epistaxis, ulcerations, etc. To the operating rhinologist, a strong and adjustable splint is indispensable. The splint here illustrated fills all of these needs. It is readily adjustable to any

Nasal splint.

degree of pressure. It is made in two parts, making it very easy of introduction. When properly placed, it allows free breathing through the nostrils.

30 North Michigan Avenue.

TRIPLETS TWICE IN ONE YEAR

MARK HORNSTEIN, M.D., NEW YORK

A woman giving birth to triplets twice in less than one year is surely a phenomenon worthy of record. I had the fortune of attending the patient in childbirth, July 10, 1916, and again, June 30, 1917, with the same numerical result. The similarity of events as regards sex of babies, degree of prematurity and presentation contribute to render the case still more interesting.

REPORT OF CASE

E. C., aged 33, decipara, who had given birth to eight children at full term, and had had one miscarriage at three months, and five of whose children were living, was born in Ireland; the husband, aged 52, was also born in Ireland. Her menstrual and previous history were irrelevant. On the evening of July 10, 1916, I was called and found the patient having moderately strong labor pains. Abdominal examination revealed no definite position, and twins were suspected. The fundus uteri rose to 3½ inches above the umbilicus, and from the statement of the patient that she had not menstruated since November, 1915, it was calculated that she was about thirty-three weeks pregnant. Vaginal examination revealed the os uteri fully dilated and the head engaged. The bag of waters was ruptured and, after a few severe expulsive pains, a small baby girl was born. After five minutes the second bag of waters was punctured, and the second baby was delivered, which proved to be a boy. The third baby, a girl, presented by the breech and was extracted without difficulty. There were three placentas, and they were separately expressed after sufficient time had been allowed for contraction of the uterus. The amount of hemorrhage was moderate, and the mother made an uneventful recovery. The infants, in spite of extraordinary care and precautions, all died, two during the following morning and one, the boy, after four weeks. The weight of the children was 3 2/5, 3 1/5 and 3 3/5 pounds, respectively.

On the evening of June 30, 1917, I was called to see the patient again. She was in the eighth month of pregnancy and in active labor. Abdominal findings were again indefinite, rendering the diagnosis almost certain of twins, possibly triplets. The first and third babies were girls, presenting by vertex; the second was a boy, presenting by the breech. There was one double and one single placenta. The weights of the babies were 3, 3 3/10 and 3 2/5 pounds. They all died during the night and next day. The mother was considerably exhausted during and after the puerperium, at the end of which she showed a loss of 30 pounds in weight.

1425 Madison Avenue.

Military Medicine and Surgery

LOCALIZED GAS INFECTIONS IN WAR WOUNDS TREATED BY MUSCLE GROUP EXCISION

KELLOGG SPEED, M.D., CHICAGO
Major, M. R. C., U. S. Army
FRANCE

In the early part of the war, the mortality from gas infections in wounds acquired in the lowlands of France and Belgium was high. Delay in treatment, unclassified knowledge, and lack of intensive study of the early symptoms were partly responsible. When the bacteriology and pathology were investigated and their interpretation was applied to the clinical manifestations, surgeons rapidly came to differentiate between early localized gas infections and the massive invasions of whole limbs. It is my intention to set forth briefly a few of the points connected with early localized infection, and to attempt to disseminate knowledge of the value of immediate treatment.

The histologic studies of McNee and Dunn[1] have shown conclusively that the spread of these infections into living muscle is extremely rapid, so that in three and one-half hours after the reception of wounds the condition is established. If the causative wound involves the main blood vessel of a limb, we may expect a rapidly generalized infection of the extremity in its distal portion. Consequently, coincident vascular damage is a factor of intense importance influencing treatment. When the blood supply is intact, we may anticipate a vertical spread of the infection in both directions of the longitudinal axis of muscle groups injured by the passage of the missile. The intensity of the infection, however, is greater as a rule in that muscle which lodges the foreign body. If but one muscle belly is lacerated, we may fully expect the localization of the early infection in it.

Many anaerobic organisms are found in the cultures obtained from tissue juices and macerated muscles. Frequently cultures from rapidly advancing gas gangrene are sterile. The streptococcus is very often an accompanying organism. Most observers have noted *B. capsulatus-aerogenes* (*B. perfringens*), or Welch's bacillus. This organism attacks sugars by fermentative action, causing an evolution of gas; consequently it finds itself quite at home in the glycogen-laden muscle tissue, and wanders rapidly through this pabulum. The changes caused by this bacterial action produce gas and an intensely toxic fluid, both of which interfere with the circulation in the affected muscle and lead to a rapid spread of gangrene. The muscle fibers become swollen and deficient in contractile power, and the organisms are found penetrating far beyond the clinical limits of the gangrene in the interstitial spaces. Death of the muscle fibers results probably more from this toxic evolution than from pressure of gas formation, the latter product possibly being secondary. After the muscle bundles are overcome by the poison, the bacteria remaining in them feed on the muscle sugars and form the abundant gas. Moreover, the sheath around individual muscles (or groups, if several are involved) tends to hold the destructive infection localized and to favor recovery without spread after early radical excision. The micro-organisms are found for the most part at the advancing edge of the process, because when the fibers die they quickly break down, gas forms, and definite histologic muscle structure disappears. No leukocytes are present, a firm proof of the clinical fact that the presence of pus in areas suspected of gas infection is indeed laudable.

Symptoms are variable; the general toxicity from a localized infection may overshadow the local findings. A fast pulse, rapid respiration, dry tongue, lack of high fever, restlessness, and a slightly icteric tint of the skin are commonly seen. In the earliest instances, seen within a few hours after wounding, these symptoms may develop directly under the surgeon's eye. Locally, there is usually pain, swelling, apparent interference with normal circulation, and as a rule the discharge of a thin, greenish, foul-smelling fluid from the wound. The odor in a true Welch infection is quite characteristic. It is fetid and extremely penetrating, resembling that from the thin stools of an infant suffering from an extreme enteritis and acidosis. Early skin changes may be very slight, even over a whole group of destroyed muscles. They are for the most part circulatory — the area is swollen and the skin appears anemic, soon becoming yellower and later a dirty bronze color which is characteristic and means a well advanced stage.

The involved muscle early shows a brick red or salmon red, and gives off this penetrating odor when laid bare. To be appreciated, the condition has to be seen in the freshly opened extremity, or in such beautiful illustrations as those given in Wallace's article.[2] When one muscle in a group is affected, the surgeon readily picks it out by the color and other changes. Gas bubbles may be seen in the interstitial spaces; the muscle is noncontractile, and crepitates slightly to the touch.

If the condition has progressed for some hours, the muscles are a deeper mahogany red, merging into a greenish black, and are pultaceous. When cut out and laid on a smooth surface, the muscle tends to flatten like soft putty.

In 1916 we discovered the value of early roentgen diagnosis in incipient and localized gas infections. When the foreign body was being searched for with the roentgen ray, it was found that the gas around it cast a small dark shadow on the plate, and close scrutiny would often reveal similar linear shadows in the interstitial spaces of the long muscles involved. Davis made a report of this important fact at the time.

TREATMENT

The treatment must consist of early radical operation, based on the facts mentioned. When the discharge from a gunshot wound simulates gas infection, when pain and swelling are out of proportion to the size of the wound tract, gas bubbles can be expressed by slight pressure, and the toxic condition is supervening. Then we must at least explore thoroughly the suspected gaseous area. Excision of the tousled tissue of the wound of entrance one-half inch from the margin is first performed. Constrictors should never be applied, because even a temporary arrest of the circulation may lead to a rapid spread of the infection. If wounds of exit and entrance are both present, they are treated alike regardless of location or extent. The affected tissue should then be laid open by a bold incision connecting the two wounds if present, or in the

1. McNee, J. W., and Dunn, J. S.: Brit. Med. Jour., 1917, **1**, 727; abstr., THE JOURNAL A. M. A., July 14, 1917, p. 153.

2. Wallace, Cuthbert: Brit. Med. Jour., 1917, **1**, 725.

long axis of an extremity, if an entrance penetration wound alone exists. Damaged infected muscle is then removed either by sharp or finger dissection, through normal planes of cleavage as much as can possibly be done *without the opening of uninvolved muscles or fascial areas.* It is unusual to find all the muscles of a limb involved unless the main blood supply has been cut off. Nor does infection tend to travel into neighboring muscles, unless they have been damaged by the missile.

These general instructions apply to those injuries that have not seriously interfered with the main blood supply of the limb. Very extensive dissections which disregard the future function of a limb are indicated when the patient's condition or other factors will not warrant amputation. In the presence of gunshot fractures, these excisions, followed by suitable splinting and extensions, lead to happy results. However, the surgeon must weigh all evidence of local findings and ultimate outcome, and if mutilation will lead to a limb functionally a nuisance, amputation is best if the patient's condition renders it possible. The use of spinal anesthesia (stovain) in lower extremity surgery must not be overlooked when amputation shock is to be avoided.

How far should muscle excision be carried? To the point at which the fibers remain uncolored by the advancing infection, until the muscle belly jerks under the cutting knife. That is, until normal contractility is found, and lastly until bloody oozing from the cut muscle bundles indicates a healthful blood supply. These operative steps are limb and life saving devices; they must be thoroughly, rapidly and anatomically performed. A small amount of tissue hemorrhage is not disturbed by the operator — large bleeding points must be ligated, but the amount of circulation present should be left undisturbed as much as possible by operative manipulation. These wounds should be left wide open without suture, and for the most part should be treated by the Carrel-Dakin method until danger of extension is past, or by warm baths of solutions selected by the surgeon. Free suppuration sometimes follows. The leukocytic infiltration and outpour of pus mean an end to the gas infection.

NACCIARONE'S METHOD

Nacciarone[3] advocates a slightly different technic. The infected limb is incised lengthwise by long parallel incisions, which open all the involved muscles and expose the bone. Muscular and fascial planes are separated by digital dissection, with care to avoid vital vascular connections. Copious irrigation for ten or more minutes follows with an iodin solution until no more odor or gas is present. Delimitation against extension is provided by the use of the actual cautery or a subcutaneous injection ring of 2 per cent. iodized solution. Drainage tubes are inserted, and the irrigation is repeated three or four times in twenty-four hours. He reports twenty instances, and believes that the cures by this method will average 90 per cent. when treatment is begun within the first six hours. The author finds that gas infections of the buttocks give the poorest prognosis, possibly on account of the extensive dissection necessary, and the large area for absorption. In twenty-four instances of gas infection treated by a local muscle excision there have been two deaths, one from pneumonia five days after operation, the other from the general toxemia.[4]

REPORT OF CASES

CASE 1.—R. S., Private, 24247, ¼ Gloucesters, was admitted to my service at the Twenty-Third General Hospital, B. E. F., Aug. 23, 1916, twenty-eight hours after injury. A penetrating wound of the right leg on the outer aspect about 3 inches below the knee was present. Early the next morning the foreign body was localized by the roentgen ray lying against the tibia near the middle of the leg, and a small characteristic gas shadow surrounded the missile. Fainter shadows in the muscle of the outer side of the leg being also present, gas infection was diagnosed. Crepitation was felt in this area, gas bubbles were expressed from the wound, and an offensive odor was noticed. Operation was performed at once. The tract of the missile was explored from the wound of entrance down to the lower third of the tibia, and the whole tibialis anticus muscle was found necrotic, a soft, putty-like, dirty red, noncontractile mass, which was scraped out by the fingers. There was no hemorrhage from the muscle, as its entire length was removed. Two additional longitudinal incisions were made laterally on the leg, and all wounds were left open from knee to ankle. Seven hours after operation, a secondary hemorrhage was found which ceased when the moist dressings were removed. Two days later the foot and ankle appeared bluish red, but this condition cleared up, and a week later the patient's temperature reached normal. Healthy granulations followed after some sloughing, and an uninterrupted recovery resulted.

CASE 2.—J. D. D., Private, 190625, First Canadian Labor. Company, was admitted to my service at the Eighteenth General Hospital, B. E. F., in October, 1917, with a gunshot wound of the thigh, fourteen hours after injury. The principal findings of a gas infection were present. Under ether the tract of the missile was explored, the foreign body was removed from the vastus medialis muscle, and on account of changed color, gas bubbles, and noncontractility, the sartorius vastus internus and medialis muscles were dissected and removed for about half their extent. This dissection exposed the sheath of the great femoral vessels, but they appeared undamaged. Three Carrel's tubes were inserted in the wide-open wound, and the Carrel-Dakin treatment was continued. One week later the wound was clean and granulated, the temperature was normal, and the man was fit to send to England. Cultures of the metal and cloth wadding removed, the discharge and muscle all gave Welch's bacillus.

CASE 3.—G. T. C., Private, 303114, First Artists' Rifles, sustained shell wounds of the left arm and leg, Oct. 30, 1917, and on account of the rush of wounded, passed through both field ambulance and casualty clearing station without operation. When he arrived at the Eighteenth General Hospital, the 31st, his wounds were septic, and the one in the left calf was very tense and gave a gassy odor. He suffered much with referred pain in the knee joint from the through and through wound of the calf. The joint was found negative. His temperature ranged between 100.5 and 101.4 F. Late that night the calf wound was laid widely open; the edges were of a greenish brown, and the dead muscle crepitated. Nearly one quarter of the gastrocnemii and part of the soleus were excised in the cleansing excision. The posterior tibial vessels were fortunately spared. By November 4, the wound was clean after eusol treatment, and the patient's temperature reached normal. Within ten days he was sent to England in good condition.

CASE 4.—B. McL., Private, 781871, Ninth Canadian M. G. C., received a shell wound, Oct. 27, 1917, through and through the right scapula, shattering the bone. The pleura was apparently intact. Wounds of entrance and exit were excised, but the main tract of the laceration was not troubled. Carrel-Dakin treatment was instituted. On his arrival at the

3. Nacciarone, A.: Rif. med., 1917, **33**, 790; abstr., THE JOURNAL A. M. A., Sept. 29, 1917, p. 1119.

4. In addition to the references already given, the following will be found of interest:
Frankau, C. H. S.; Drummond, H., and Neligan, G. E.: Successful Conservative Treatment of Early Gas Gangrene in Limbs by Resection of Infected Muscles, Brit. Med. Jour., 1917, **1**, 729; abstr., THE JOURNAL A. M. A., July 14, 1917, p. 153.

Eighteenth General Hospital, early on the 29th, there was present a typical gas odor, bubbles could be expressed on slight pressure, and tissue crepitus was noticed. The entrance and exit wounds in the scapular region were connected by a long incision. Necrotic gaseous supraspinatus and infraspinatus muscles with much of the bone were excised, and Carrel's tubes were laid in for irrigation. By the 30th the wound appeared well, and suppuration was beginning under one edge. Suddenly, November 1, his temperature, which had dropped below 100, jumped to 103.4, and on the 4th he passed away with a lobar pneumonia. There was no further evidence of gas infection in the wound.

THE EPIDEMIC OF MENINGITIS AT CAMP JACKSON

PRELIMINARY REPORT

W. W. HERRICK, M.D.
Major, M. R. C., U. S. Army; Chief of Medical Service, Base Hospital, Camp Jackson, Columbia, S. C.
NEW YORK

The epidemic of meningitis at Camp Jackson will be reported in detail at a later time. It seems profitable to bring to general notice some of the peculiar features of the epidemic and some of the methods used to arrive at an early diagnosis, along with certain modifications of treatment that have proved valuable.

Over 140 cases have been observed and classified as abortive, ordinary and fulminating. The last have generally shown extensive purpura, with death in from four to ten hours, without the clinical or necropsy findings of meningitis.

The disease is not primarily a meningitis. It is a generalized systemic invasion by the meningococcus—a sepsis — with possible secondary involvement of the meninges, joints, pericardium, endocardium, testicles, conjunctiva, sclera, pleura, lungs, from all of which regions, in addition to the tonsils and pharynx, the micrococci have been isolated. In many cases the systemic symptoms appear from twenty-four to seventy-two hours before involvement of the meninges. These general symptoms are not at all characteristic. Moderate fever, weakness, mild apathy, coated tongue, pharyngitis or coryza, and mild digestive disturbances are most common. Headache and other cerebral symptoms are generally absent at this stage.

In about 75 per cent. of the cases in this epidemic, the earliest sign of value in diagnosis has been the petechial rash. In order of frequency this rash appears on the deltoid regions, hips, trunk, extremities, mucous membranes, and face. The purpura of the fulminating cases does not originate in these petechiae, but is apparently a separate lesion.

The meningococcus can usually be recovered in the spinal fluid withdrawn at the first or second lumbar puncture, and often from six to thirty-six hours before the characteristic clinical picture develops or cellular increase and cloudiness occur in the fluid. It is our impression that the cerebral precedes the spinal involvement. For this reason, in doubtful cases, the lumbar puncture should be repeated at intervals of from three to six hours in order to drain the meningococcus from the brain. Thorough centrifugation and careful examination of the sediment usually reveal one or more pairs of meningococci. At this early stage these organisms are extracellular and variable in size and appearance. The spinal fluid is clear, has a normal cell content, without polymorphonuclears, usually reduces Fehling's solution, and may or may not show a faint trace of globulin.

Diagnosis in the stage of meningococcic sepsis may be made many hours before the meningococcus has time to develop its characteristic selective action on the meninges. In the present epidemic, a rapidly developing petechial rash, fever and variable general symptoms and the findings of isolated meningococci in the spinal fluid have been the important factors in an early diagnosis.

The term "epidemic cerebrospinal meningitis" is misleading when applied to an epidemic of this character. "Spotted fever" is more satisfactory, but inadequate because a minority of the patients show little or no rash. "Meningococcus sepsis" is more correct.

In the light of the foregoing observations, the usual methods of treatment have been modified, and with success. In the stage of sepsis before meningitis has developed, routine intravenous administration of meningococcus antiserum in doses of 20 to 60 c.c. has been effective and has in many cases been followed by striking improvement. Such doses have been administered every twenty-four hours during the first three or four days of the disease. We feel that intravenous serotherapy should precede the intraspinal, and that in these cases of primary meningococcus sepsis it is probable that such intravenous serum administration is of more importance than the ordinary intraspinal treatment. The latter must not be neglected, but is probably best deferred in some cases until the spinal fluid becomes cloudy. It has been pointed out by Amoss and his co-workers that the injection of serum intrathecally increases the permeability of the choroid plexus for the virus of poliomyelitis. It is important that the same question be experimentally investigated in meningococcus sepsis.

INTERPRETATION OF THE SCHICK REACTION IN RECRUITS FOR THE NATIONAL ARMY*

ABRAHAM ZINGHER, M.D., NEW YORK
First Lieutenant, M. R. C., U. S. Army
CAMP UPTON, YAPHANK, N. Y.

Occasional outbreaks of diphtheria in military camps, and the possibility of preventing them by utilizing the more recent advances in the prophylaxis against this disease, have caused us to apply the Schick test to the recruits for the National Army on their admission to Camp Upton, Yaphank, L. I. Over 2,500 men have thus far been tested. Owing, however, to the assignment of the recruits, within forty-eight hours, to different regiments scattered over the camp, it was found necessary to discontinue making the test at the time of the primary physical examination. The test will be applied later, when it can be more conveniently done, to all the members of each regiment.

During the past four years an increasing number of hospitals and various institutions have adopted the Schick test as a routine procedure for determining the susceptibility or immunity of children and adults to diphtheria. In children the test is simple and extremely reliable, if properly made with a well ripened toxin. The pseudoreaction is only occasionally seen in children, but in adults it is frequently

* Presented before the Section on Medicine, New York Academy of Medicine, Oct. 16, 1917.

noted and often gives rise to a wrong interpretation of the reaction. In applying, therefore, the Schick test to adults, one is confronted with the necessity of controlling the reaction so as to promptly separate the pseudo from the true reaction. The false reaction is due to the autolyzed protein of the diphtheria bacillus, and not to the soluble toxin which gives rise to the true reactions. This protein represents the body substance of the diphtheria bacilli, which have disintegrated and become dissolved in the broth culture used for making the toxin.

In order to determine whether a reaction was a positive or a pseudoreaction, the following procedure was adopted: Diphtheria toxin heated to 75 C. for five minutes was used as a control. By the heating of the test toxin, the soluble toxic fraction was destroyed, while the autolyzed protein was not appreciably affected. To allow, however, for any slight deterioration, we used in the control 50 per cent. more of the heated toxin. For the Schick test the toxin was used in the strength of 1:1,000 (the minimal lethal dose is 0.01 c.c.); for the control, the heated toxin in the strength of 1.5:1,000. The Schick test was made in the usual way on the right forearm, and at the same time the test for the pseudoreaction was made on the left forearm.

The reactions were read twice, once at the end of forty-eight hours and again at the end of ninety-six hours. The pseudoreaction, as is well known, develops more rapidly than the true reaction; for that reason the early reading is quite important for its identification. The scheme given in Table 1 will show the appearances of the reactions.

The positive reaction shows in forty-eight hours a moderate degree of redness at the site of the test, and none at the site of the control. At ninety-six hours the positive reaction appears well marked, the control remaining negative.

The pseudoreaction shows in forty-eight hours a well marked redness, at the site both of the test and the control. The reaction fades quite rapidly, so that at the end of ninety-six hours there is seen only a

TABLE 1.—APPEARANCES OF THE REACTIONS*

Time	Positive		Pseudo		Combined		Negative	
	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.
Forty-eight hours ..	±	—	+	+	+	+	—	—
Ninety-six hours ...	+	—	±	±	+	±	—	—

* The signs +, ± and ± indicate varying degrees of redness.

bluish-brown area of pigmentation on both forearms. This shows the necessity of making the early reading at the end of forty-eight hours.

The combined reaction, representing a positive and a pseudoreaction, gives at the end of forty-eight hours an appearance similar to that seen with the pseudoreaction; but at the end of ninety-six hours the positive reaction at the site of the test stands out distinctly, while the control shows only the blotchy area of pigmentation.

The negative reaction shows no redness in either the test or in the control.

The positive and combined reactions indicate that the individual is susceptible; the negative and the pseudoreactions, that he is immune to diphtheria.

In children the pseudoreaction is not as frequent as in adults, and the Schick reaction as a clinical test is much simplified by omission of the control test, and by the making of a single observation at the end of seventy-two or ninety-six hours.

Table 2 shows the results noted among 2,648 recruits for the National Army.

It is interesting to note in the first increment that the number of pseudoreactions is about the same as that of the positive reactions. In this group the readings were made at the end of forty-eight and ninety-six hours. In the second increment the number of pseudoreactions is smaller, that of the positive reactions larger. This is explained by the fact that, owing to the rapid assignment of the recruits to the different regiments, it was often difficult to take more than one reading, and that, in many instances, not before the fifth or sixth day. In this way some of the pseudoreactions were missed altogether.

TABLE 2.—RESULTS OF SCHICK TEST AT CAMP UPTON, N. Y.

Schick Test	Total	Per Cent.
First Increment, 1,165—		
Negative	848	72.8
Pseudo	143	12.2
		85
Positive	154	13.3
Combined	20	1.7
		15
Second Increment, 1,483—		
Negative	1,072	72.3
Pseudo	143	9.7
		82
Positive	262	17.6
Combined	6	.4
		18

It will not be difficult to carry out the work systematically after these men are grouped in units. The regimental surgeons should be able to make the tests, read the reactions, and have the results noted on the service record of each recruit. Such a record is of value, since it is probable that the individuals who give a negative Schick reaction or a pseudoreaction are protected for several years and possibly for life. Those who show a positive or a combined reaction are the only ones that need to be immunized with a dose of antitoxin during an outbreak of diphtheria. These individuals should also be actively immunized with diphtheria toxin-antitoxin, so as to develop a lasting protection against this disease.

CONCLUSIONS

1. The Schick test on soldiers gathered in camps is a practical procedure, and can be accurately interpreted by using a simultaneous control with heated toxin.

2. The amount of heated toxin in the control solution should be 50 per cent. more than the unheated toxin in the test solution.

3. Observations should be made at the end of forty-eight and ninety-six hours, and the final results noted on the service records.

4. Those giving a positive Schick reaction should be actively immunized with diphtheria toxin-antitoxin.

Catgut Netting to Stimulate Granulation in Wounds.—The *Nederlandsch Tijdschrift* summarizes an article on this subject by Neuhäuser in the *Berliner klinische Wochenschrift*, No. 34. He was impressed with the way the tissues grow exuberantly into the openings in a drain tube left long enough, and became convinced that the stimulus of a foreign body aids materially in regeneration. By taking catgut, the foreign body need not be removed when used for this purpose. He made a network of No. 3 or 4 catgut, and pressed it on the surface of the wound, carrying it down into all crevices. The experiences with this artificial mode of stimulating regeneration are reported as extremely favorable.

THE PSYCHIATRIC EXAMINATION OF RECRUITS

ALBERT WARREN STEARNS, M.D.
Assistant Surgeon, United States Naval Reserve Forces
SAN FRANCISCO

When psychiatric work was begun at a naval training station, a new work was being undertaken. No precedents had been established, and no approved method was in vogue. For this reason the first effort was to seek out and understand the special problem presented. Enough work had been done to show that nervous and mental diseases occur in the Naval Service, and that most of these probably antedate enlistment. An analysis of the reports of the Surgeon-General has been made, and the following facts gleaned from the 1916 report, showing the relation of neurology and psychiatry to the Medical Department for the year 1915:

Total men invalided from the service, 1,272, or 18.68 per thousand.

For nervous and mental diseases, 244, or 3.57 per thousand (by corrected classification, 270, or 21 per cent.).

That is, 19 per cent. of those invalided from the service were for nervous or mental diseases.

Total damage from all diseases, 2,914.55.

Damage from nervous and mental diseases, 213.7, or 7.3 per cent. of total damage.

Total sick days, all diseases, 776,203.

Sick days from nervous and mental diseases, 31,319, or 4 per cent. of total sick days.

Of the total of 44,743, 1,272, or 2.5 per cent., were invalided from the service.

In 621 nervous and mental cases, 244 men, or 39 per cent., were invalided from the service.

Thus, though the total sick days and damage is relatively small, as a cause for total loss from the service, nervous and mental diseases rank high.

In addition there were 21 suicides, constituting 6.8 per cent. of the total deaths during the year.

Of 104 recruits rejected at Norfolk, 21, or 25 per cent., were for nervous disease.

The foregoing figures should be contrasted with recruiting statistics:

Total number of applicants examined, 106,392.

Total applicants rejected, 74,280.

Total applicants rejected for mental diseases, 273, or 0.0025 per cent.

Nervous diseases are not mentioned in the list at all; but as all important causes are given, the number may be assumed to be lower than that for mental diseases.

The main types of nervous disease for which men were invalided from the service are given in Table 1, classified according to the probable time of onset.

The most striking thing about these figures is the almost entire lack of the feebleminded group. This is readily explained by examination of the annual report of the Judge-Advocate General of the Navy, for the year 1916, coupled with known facts regarding delinquency (Table 2).

King's analysis of causes of delinquency assign mental disease in 32.9 per cent. of the cases. If this percentage holds true in the Navy, the loss to the Navy per year on account of mental disease is greater for disciplinary reasons than for medical causes. Both combined would approximate 4 per cent. of the total personnel.

The fact that one was to deal with a medically selected group would indicate that those presenting grosser symptoms of mental disease would have been already eliminated. Certain military considerations limit and so simplify the problem. The vast majority of those to be examined were between 18 and 25 years of age, making alcoholic and syphilitic mental disease unlikely. Also educational requirements in large groups, such as hospital apprentices, and landsmen for yeomen and machinist's mates, could be expected to eliminate the feebleminded. Then, too, certain diseases, such as stammering and bed wetting, are more important handicaps than in civil life. In other branches, such as apprentice seamen and firemen, third class, educational requirements are nil.

The work, therefore, has been undertaken from the standpoint of the investigator, and an attempt made to determine, first, the incidence of nervous and mental disease among recruits, and secondly, the desirability of accepting or rejecting each class, as well as to eliminate

TABLE 1.—MAIN TYPES OF NERVOUS DISEASE FOR WHICH MEN WERE INVALIDED

Group 1. Diseases surely present at time of enlistment:	
Constitutional inferiority	36
Constitutional psychopathic state	11
Imbecility	1
Somnambulism	1
Stuttering and stammering	4
Total	53
Group 2. Diseases probably existing at time of enlistment:	
General paralysis	5
Dementia praecox	46
Epilepsy	51
Tabes	1
Incontinence of urine	4
Neurosis of bladder	46
Total	153
Group 3. Predisposing causes, probably existing at time of enlistment:	
Hysteria	53
Neurasthenia	31
Psychasthenia	14
Total	98

TABLE 2.—DELINQUENCY IN THE NAVY AND IN THE ARMY

Total number of men handled during the fiscal year	72,885
Discharged in honorable status at expiration of enlistment	10,284
Discharged as undesirable for inaptitude, or with ordinary discharge, not recommended for reenlistment	756
Dishonorable discharges	1,000
Bad conduct discharges	2,296
Total	4,052
Total desertions for the year	1,681
Also men coming before general court martial	2%
Men coming before summary court martial	12%
Men coming before deck court	9%

The last figures do not include mast cases, the most numerous of all. King* gives figures on Army delinquency as follows:

1908-1913, total enlistments	250,704
Bad conduct discharges	30,000
	or 12%
Desertions	23,000

*King, Edgar: The Military Delinquent, quoted in Mental Hygiene, July, 1917, p. 433.

those obviously unfit. The much discussed problem of malingering, of course, occurs, but as all naval recruits are volunteers who wish to enter the Navy, many to avoid draft in the Army, and so would cover up rather than produce symptoms, this problem has been a slight one.

METHOD

In general, psychiatric methods are cumbersome, and the machinery of a military establishment is rapid and precise; so it was obviously necessary to abandon clinical ideals, and find a method which was workable and effective if not ideal and which would not interfere with the routine of the station. Conservatism was demanded, and the application of known methods and facts, rather than the trial of new theories. The selection of cases for examination presented difficulties. One must either depend on others not especially trained

or interested in psychiatry to refer suspects, or must see every man oneself. The latter alternative was chosen. This meant seeing a large number of men daily. The number has varied from 10 to 125, averaging 32.5 per day. Each man when accepted is given an outfit valued at $60 or more; thus the advantage of examination before outfitting is seen, as this outfit is the man's own property and is a total loss to the government, if he is accepted and subsequently discharged. Besides, these men must be seen quickly, as the routine of the first day is full. Frequently it has been necessary to see over sixty men in an hour.

Psychologic methods were considered and rejected for two reasons: First, they are too cumbersome. Second, the application of the findings is not specific enough, and applies largely to the feebleminded group.

The routine that has been established makes inspection, with school and social history, that is, the knowledge of the previous conduct of the individual, the basis of first judgment. On arrival, each man is interviewed, seated along beside the examiner's desk. Thus favorable conditions for getting the true history are present. In each case a card is filled out with data on the name, date, number, age, civil condition, rate, home, place of enlistment, physical examination, appearance, school, occupation, medical history, alcoholic history, arrests, symptoms and fitness (1, 2, 3). The patient's manner, general attitude, clothes and mental reaction are considered. The relation between the home and the place of enlistment is very important, especially among the younger recruits, for how could a dull, dirty boy of 18, living in New York, enlist in Denver without riding freights? Complete neurologic examination is not made, but signs like tremor, goiter, asymmetry or unequal pupils are noted. Only striking things are noted under appearance. As no illiterates are received, the school history is of the greatest importance in eliminating defectives. All who have less than eighth grade schooling are questioned carefully regarding the cause for this.

Occupation ranks next in importance. A man of neat appearance, who has just resigned a position as a bank cashier to enlist, quite obviously is not feebleminded or insane, while the man of odd jobs is always a suspect. Under medical history a general question or two regarding health and one or two questions attempting to rule out psychoneurosis, bed wetting, epilepsy and sleep walking are asked. Alcoholic or criminal histories are sought only when suspected. Positive symptoms are then recorded and the man graded in one of three groups. About 80 per cent. have shown nothing to arouse any suspicion of nervous or mental disease, and are put in Group 1. These are then ready to be given outfits, and are never seen again, unless subsequently referred to the psychiatrist, and the fact that only three patients in this group have been referred back with nervous or mental disease during three months and for a total of over 2,200 cases would indicate that nervous and mental diseases can be excluded in about 80 per cent. of the recruits after a one minute examination, with an error of about 0.05 per cent.

If there is some obvious nervous or mental disease present like stammering, a recent convulsion or severe psychoneurosis, the patient is held at the recruit house, and after conference with the medical officer in charge is discharged. This constitutes about 1 per cent., and is called Group 3. If some suspicion of nervous or mental disease arises, the recruit is put in Group 2 as doubtful. As the feebleminded are being accepted at present, they are all in this group. These doubtful cases are given outfits and sent to the detention barracks. One week later they are examined at leisure and an attempt made to put them either in the normal or abnormal group. Otherwise, they are kept on the doubtful list. About one fourth of the doubtful group prove to be psychopathic. Any member of Group 1 who subsequently comes to the attention of the examiner is put in Group 2 or 3, as may be. If there are only a few recruits to be examined, a good deal of time may be taken for examination, and so Group 2 is kept small, while in the rush of busy days it may be expanded. All the cards of men in Groups 2 and 3 are kept filed, and an attempt is made to trace their career in the Navy. So, with the constant flow of men through a station, the whole population is soon completely classified. This initial examination can be made in about one minute. Seventy-five have been done in an hour. Usually four or five minutes are available for examination of each man.

Psychopathic individuals, after being given outfits, come to the attention of physicians, company commanders and disciplinary officers, so that the following program for psychiatric work at a naval training station is suggested:

1. Examination of all recruits as explained above.
2. Examination of all delinquents.
3. Examination of patients referred by physicians.
4. Examination of men referred by company commanders.

To this might be added an attempt to interest and instruct recruiting officers in a district drained by the station to prevent first enlistment. This program can be well carried out by one psychiatrist, with the assistance of a trained man to do formal tests and some clerical work, provided arrivals do not exceed 100 a day.

FINDINGS

The first 2,000 consecutive cases have been analyzed as in Tables 3 and 4.

Since this work was begun, forty-two men have been invalided from the service at this station, twenty-one, or 50 per cent., being for nervous and mental diseases. Diagnoses in the nervous and mental cases are given in Table 5, those in italics being from the 2,000 consecutive cases.

The number included in the 2,000 cases is sixteen, or 0.8 per cent. All of these, except the paralysis of the ulnar nerve, existed prior to enlistment, and all others were detected in the recruit house, except one epilptic and one instance of neurosis of the bladder. Several of the feebleminded have already been given bad conduct discharges, but complete data on this matter are not at present available.

By far the largest and most important group is the feebleminded. This number, comprising 2 per cent., is conservative, and does not include many very inferior but somewhat doubtful cases. This group rarely if ever comes to the attention of medical officers, but it appears from my own observation, as well as from the opinion of medical officers of many years' experience, that the members of the group are soon eliminated through desertion, inaptitude and bad conduct. Furthermore, this group does not represent the average feebleminded, but the restless, roaming, troublesome type. Many gave a history of vagrancy, and

enlisted a day or two after landing in a town on freight trains. Most of them could have been eliminated if a school and short social history had been taken at the point of enlistment.

The psychoneurotic group, 0.85 per cent., comprises only those who gave a history of nervous trouble and who were actually treated within two weeks after arrival at the station. All were detected at the recruit house, for these men are rather anxious to tell their symptoms. Again, more history should be taken by medical officers on recruiting duty. The psychoneurotics present a pitiful picture in a military establishment, and are sooner or later eliminated.

TABLE 3.—FINDINGS IN TWO THOUSAND CASES

	Per Cent.
Ages:	
Under 21 years	32+
From 21 to 25 years, inclusive	48+
From 26 to 30 years, inclusive	13+
From 31 to 34 years, inclusive	4+
Education:	
Less than 8th grade	17
Eighth grade or more	83
High school or more	44
College, not including business college	11
Ratings:	
Apprentice seamen	49+
Firemen, third class	16+
Hospital apprentices, second class	13+
Landsmen for yeomen	7+
Eighteen miscellaneous ratings	15+
Ratings with educational or special requirements other than physical examination. This group contained no feebleminded	29

TABLE 4.—DIAGNOSES

	Number	Per Cent.
Feebleminded	40	2
Psychosis neurosis	17	.85
Psychosis	2	.1
Epilepsy	4	.2
Stammering	5	.25
Enuresis	2	.1
Chronic alcoholism	2	.1
Psychopathic personality	2	.1
Defective delinquents	3	.15
Habit spasm	1	
Malingering	1	
Somnambulism	1	
Hermaphrodism	1	
Total	81	4 +
Goiter	33	1.65

TABLE 5.—DIAGNOSES IN NERVOUS AND MENTAL CASES*

1. Hypochondriasis	12. *Imbecility*
2. Hysteria	13. *Neurasthenia*
3. *Psychasthenia*	14. *Epilepsy*
4. *Stammering*	15. *Stammering*
5. *Psychosis, infectious*	16. *Neurasthenia*
6. *Constitutional inferiority*	17. *Epilepsy*
7. *Imbecility*	18. *Paralysis of nerve, ulnar*
8. Imbecility	19. *Atrophy of testicle (hermaphrodism)*
9. *Epilepsy*	
10. Hysteria	20. *Neurosis of bladder*
11. *Epilepsy*	21. Imbecility

*The diagnoses in italics are from the 2,000 consecutive cases.

Three of the four epileptics gave a history of unconscious attacks at the recruit house, were held there until they had a fit, and were then eliminated from the service. The small number of cases of constitutional inferiority and psychopathic personality is probably due to nonrecognition rather than to their absence, as these persons come to one's attention only when they get into trouble. The large number of goiter cases, all probably of the simple type, is explained by the large number of recruits from Washington and Oregon. The lack of dementia praecox cases seems to show that present methods eliminate this group, though an occasional hebephrenic case would probably get by without being detected.

CONCLUSIONS

1. About 4 per cent. of recruits as at present enlisted show some nervous or mental disease, the most important of which are mental defect and psychoneurosis.

2. Inspection, with brief school, social and medical history, will eliminate nervous and mental diseases in more than 80 per cent. of the cases. In the remainder, more extended psychiatric examination is necessary.

3. If recruits with a history of backwardness in school, low economic efficiency and delinquency were rejected, the troublesome, worthless group, including the feebleminded, would be eliminated. Recruiting officers should avail themselves of police records in doubtful cases.

4. It is my opinion that a brief history furnishes the most practical method of isolating the small group needing special psychiatric examination.

THE BLOOD OF WORKERS IN TRINITROTOLUENE

L. H. SMITH, M.D.
Assistant Surgeon, United States Public Health Service
PHILADELPHIA

During the last few years, trinitrotoluene (T. N. T.) has taken its place among the important industrial poisons.

According to Panton,[1] the types of sickness that may occur from the absorption of trinitrotoluene are: (1) severe gastric disturbance, without jaundice or anemia; (2) anemia of the aplastic type, and (3) toxic jaundice. The jaundice patients may acquire the aplastic anemia also.

The symptoms complained of by workers in trinitrotoluene have been carefully investigated by Livingstone-Learmonth and Cunningham.[2]

From analogy, it was thought changes in the blood might occur after continued absorption of trinitrotoluene, as is the case with certain other benzene compounds, notably benzene (benzol, C_6H_6) and dinitrobenzene (D. N. B.).

Selling[3] and others have shown that a condition of aplastic anemia may result from benzene poisoning. The power of benzene to reduce the number of leukocytes has been made use of in leukemia.

Malden[4] gives a report of the blood findings based on the examination of twenty-one men employed and still at work in dinitrobenzene. He found that the red blood count was reduced. The red blood cells varied in size and shape, and constantly showed marked basophil granulation. Nucleated red blood cells were occasionally decreased, the color index being normal. The total white blood count was increased, but with considerable relative decrease in the polymorphonuclear cells. Eosinophil cells sometimes and the mast cells more often were relatively and absolutely increased.

The report of the British Ministry of Munitions,[5] discussing the effect of dinitrobenzene, states that on absorption it produces in all persons alike its chemical effect on the blood, varying in degree according to dosage. The report states also that blood changes in trinitrotoluene poisoning appear to be the same in kind as those for dinitrobenzene, though less in degree.

1. Panton: Lancet, London, 1917, **2**, 77.
2. Livingstone-Learmonth and Cunningham: Lancet, London, 1916, **2**, 261.
3. Selling: Bull. Johns Hopkins Hosp., 1910, **21**, 33.
4. Malden: Jour. Hyg., 1907, **7**, 672.
5. Ministry of Munitions: Lancet, London, 1916, **2**, 1026.

Panton,[1] who investigated the effect of trinitrotoluene on the blood of fifty women workers in England, says that the red blood count, the hemoglobin and the color index were not adversely affected. The morphologic character of the red blood cells throughout was normal. Not a single nucleated red blood cell nor a single cell showing granular degeneration was observed in fifty stained preparations. A very slight degree of poikilocytosis was seen in a few films. The white blood cells, in a large percentage of cases, were above normal in number. The relative proportions of white blood cells were not greatly altered, but many cases such changes were found as noted by Malden among the dinitrobenzene workers. This, on the whole, agrees with the work of Panton, in his investigation of the effect of trinitrotoluene on the blood.

The hemoglobin, the red blood cells and the white blood cells were not markedly affected.

No poikilocytosis, anisocytosis, basophilic granulations, or nucleated red blood cells were observed.

The white blood cells, in a large percentage of cases, were somewhat above normal in number.

The differential counts showed some variation from the normal, the polymorphonuclear neutrophils being

BLOOD FINDINGS

No.	Age	Color	Time Employed	Color Index	Hemoglobin	Red Blood Cells	White Blood Cells	Differential Count					
								Neutrophils	Basophils	Eosinophils	Mononuclears		Transitionals
											Large	Small	
1	32	W.	6 mo.	0.76	75	4,932,000	6,700	56	2	2	35	4	3
2	35	W.	6 mo.	0.87	90	5,296,000	8,600	84	0	1	10	4	1
3	23	W.	2 yr.	0.75	78	5,208,000	7,100	75	0	1	15	5	4
4	23	W.	7 mo.	0.98	85	4,392,000	6,850	55	0	1	36	3	5
5	44	W.	6 mo.	0.76	75	4,960,000	6,700	47	1	3	38	9	2
6	30	W.	6 mo.	1.00	83	4,416,000	5,500	53	2	0	40	3	2
7	32	W.	1½ yr.	0.91	90	4,976,000	12,000	78.5	0.5	0	13	3	3
8	25	W.	6 mo.	0.81	75	4,600,000	6,900	54	0	4	27	9	6
9	29	W.	3 yr.	0.81	90	5,328,000	9,500	73	1	1	15	7	4
10	25	W.	4 mo.	0.76	80	5,216,000	10,800	69	1	2	13	6	9
11	24	W.	7 mo.	0.97	90	4,624,000	11,800	73	0	4	19	3	1
12	26	W.	6 mo.	0.81	85	5,240,000	7,600	65	1	6	20	4	4
13	62	W.	3 yr.	0.83	80	4,800,000	9,000	72	1	5	16	6	0
14	40	W.	1 mo.	0.88	85	4,888,000	8,000	64	0	8	25	1	2
15	41	W.	5½ mo.	0.93	80	4,392,000	7,050	66	0	1	26	4	3
16	39	B.	3 mo.	0.86	80	4,600,000	4,750	49	1	7	34	5	4
17	37	B.	3½ mo.	0.96	85	4,456,000	6,200	59	0	2	35	2	2
18	21	B.	4½ mo.	0.81	95	5,848,000	7,700	49	0	6	39	4	1
19	27	W.	3 mo.	0.85	95	5,008,000	5,700	56	1	1	29	9	5
20	46	B.	4 da.	0.95	95	5,024,000	8,500	47	0	6	35	7	5
21	42	W.	5½ mo.	0.93	90	4,840,000	8,050	60	1	8	22	8	1
22	42	B.	4 mo.	1.00	90	4,576,000	9,750	52	1	2	26	12	7
23	28	B.	5 mo.	0.98	85	4,278,000	8,000	61	0	1	24	9	5
24	21	W.	3 mo.	0.89	88	4,992,000	11,100	63	0	2	25	3	7
25	30	W.	5½ mo.	0.80	85	5,312,000	9,650	67.5	0.5	7.5	19.5	3.5	1.5

with high counts showed a distinct relative increase in the polymorphonuclear neutrophils. The eosinphil cells were in a large number of cases above the normal. Very few abnormal white cells were seen in any preparation. Panton thinks it probable that this leukocytosis, usually of the inflammatory type, is due to a stimulation of the hematopoietic system by the poison.

The present report is based on the examination of twenty-five men who were employed where trinitrotoluene in its finely powdered form was used in the filling of shells.

These men had been working in the same room at various tasks from foreman to that of janitor. The air of this room was more or less constantly filled with trinitrotoluene dust. All the men were at work at the time of examination. A majority of the men had been at work for five months or longer.

None of the workers was sick at the time of examination, but a few had slight blueness of the lips, and several admitted having abdominal pains, "full feeling" in the epigastrium, constipation, and two or three had had skin rashes. Nearly all experienced the bitter taste, which they counteracted by chewing tobacco. A few had an irritative cough, lacrimation and smarting of the eyes. Many wore hats to keep their hair from turning to the characteristic orange-yellow color. No case of jaundice or of anemia was noted.

There can be no doubt that there was ample opportunity for the absorption of trinitrotoluene through the skin and by way of the respiratory tract.

The blood findings in the twenty-five men examined were for the most part negative. So far as the red blood cells and the hemoglobin were concerned, no increased in many instances, and the eosinophilic cells slightly increased in about 40 per cent. of the cases.

The platelets appeared normal.

The accompanying table gives the blood findings in detail.

410 Chestnut Street.

Therapeutics

WARTS

Warts need little description. For the most part they are simple affairs occurring most frequently on the hands. Although they may develop in certain diseased conditions and at times seem to develop in conjunction with disturbances of the internal secretions, it is coming to be believed that they are caused by micro-organisms and are probably auto-inoculable. A crop of warts may seem to resist every treatment, and suddenly without any known causative influence entirely disappear within a few days. For this reason, all sorts of absurd treatments have been suggested, and some of them have numerous adherents among the laity. At the same time numerous treatments have been described in medical literature, and many of these have achieved a following. Lately the long administration of lime in some form to increase the lime content of the blood and tissues is being revived as a method of treatment.

Local treatments directed to the warts are usually successful in removing these unsightly protuberances. Among the escharotics that have been suggested are

painting with glacial acetic acid. Stronger caustics, such as nitric acid, potash, formaldehyd solutions of the strength of the official preparation, etc., should be used with great caution. The surrounding skin should always be protected.

Very efficient methods for the removal of warts are burning with the thermocautery followed by application of mild corrosive preparations, application of radium, or several treatments with the roentgen ray. The use of "carbon dioxid snow" is also efficient.

A time-worn prescription is salicylic acid in collodion:

	gm. or c.c.
℞ Salicylic acid	2
Collodion	30

The wart should be touched with this solution two or three times a day, each time the film of collodion being removed.

A more sedative and as efficient a preparation is:

	gm. or c.c.
℞ Chloral hydrate	10
Salicylic acid	2
Collodion	30

Also the following is suggested:

	gm. or c.c.
℞ Calomel	1
Salicylic acid	2
Wool fat	20

This should be applied to a wart two or three times a day:

A more active solution is:

	gm. or c.c.
℞ Chrysarobin	2
Collodion	30

CARE OF FEET IN TRENCHES

The following extract from orders issued to the British army in France for the prevention of chilled feet and frostbite is taken from the *Army and Navy Journal*. As a result of this experience the same precaution will be followed by United States troops serving abroad:

PREVENTION OF CHILLED FEET AND FROSTBITE

These conditions are caused by prolonged standing in cold water or mud, and the continued wearing of wet socks, boots and puttees. They are brought on much more rapidly when the blood circulation in the feet and legs is interfered with by the use of tight boots, tight puttees, or the wearing or anything calculated to cause constriction of the lower limbs.

They can be prevented or diminished by improvements to trenches leading to dry standing and warmth; by reducing the time spent in the trenches as far as the military situation permits; by regimental arrangements insuring that, so far as is possible, men enter the trenches warmly clad in dry socks, boots, trousers and puttees, and with the skin well rubbed with whale oil or antifrostbite greases; by provisions of warm food in the trenches when possible, by movement, when possible, so as to maintain blood circulation; by the provisions of warmth, shelter, hot food and facilities for washing the feet and drying wet clothes for men leaving the trenches.

In order to minimize the prevalence of chilled feet and frostbite, commanding officers will be held responsible that the following instructions are carried out unremittingly and under the strictest supervision: Before entering the trenches, feet and legs will be washed and dried, and then well rubbed with whale oil or antifrostbite grease, and dry socks put on. It is of the utmost importance that whale oil or antifrostbite grease should not merely be applied, but thoroughly rubbed in until the skin is dry. Unless the precaution is systematically carried out, the oil and grease become in a great measure valueless. A second pair of dry socks will be carried by each man and, where possible, battalion arrangements will be made for socks to be dried and reissued during each tour of duty in the trenches. While in the trenches boots and socks will be taken off from time to time, if circumstances permit, the feet dried, well rubbed and dry socks put on. On no account will hot water be used, or the feet held near a fire.

Where possible, hot food will be provided during tours of duty in the trenches. Where circumstances admit, long gum boots will be put on while the men's feet are dry, before entering wet trenches, in order that men start their tour of duty with dry feet. When gum boots are worn it is well to support the socks by some form of fastening, such as a safety pin, to prevent them from working down under the heel. On no account will anything in the form of a garter be worn.

When conditions are favorable, regimental rest posts will be instituted in proximity to the trenches, where men who show signs of suffering from exposure can be promptly attended to.

Under brigade arrangements, provision will be made for the washing and drying of feet in reserve billets, for the exchanging of wet socks for dry ones, and if possible, the sending of the latter to the trenches, and for drying and brushing clothes. Steps will be taken to insure that men make use of these arrangements.

Long gum boots are being issued to the fullest extent of the supply available, and every effort will be made to procure all that are necessary for men holding water-logged trenches. It is pointed out that the distribution of these boots depends on the necessity for their use according to the nature of the trenches held by divisions, brigades, etc., and that, therefore, the distribution will be made, not according to the numerical strength of formations, but according to the nature of the trenches which formations are required to hold. It has been noticed that men wear these boots in billets and localities a considerable distance behind the trenches. Long gum boots are solely for the use of men in the trenches, and will not be issued to or used by men under any other conditions.

PERSPIRING AND FROZEN FEET

Following the publication "Sweating of the Feet and Axillae" (Therapeutics, THE JOURNAL, Jan. 12, 1918), several subscribers have volunteered further suggestions. Dr. Charles T. St. Clair, Bluefield, W. Va., writes:

I have found from personal experience that coal oil (kerosene) applied night and morning to old painful, itching frostbites of the feet gives almost immediate relief. It should be applied with a cloth and cotton soaked in the kerosene and allowed to evaporate, which it will do in a few minutes. If the sock is put on and the person goes to bed with the foot still wet with the oil, it may burn the skin.

Dr. Valentine M. Reichard of Fairplay, Md., writes:

I desire to add my experience, which has proved, by more than thirty years' trial, that ordinary powdered alum is a specific for sweating of the feet. For one who has suffered subjectively or objectively from perspiring or odorous feet, any decided relief is a great boon. Such relief does not come from bathing. It is not a matter of cleanliness alone. If the patient will simply dust the feet with powdered alum, also dusting some of it into stocking or sock before putting the stocking or sock on the foot, and will then dust some more of the powder into the shoe before putting it on, and will keep water off the feet, the relief will be prompt and most gratifying.

Nature's Laboratory.—It is too often overlooked that for century after century Nature has been pitilessly performing her crude and cruel experiments and killing millions of human beings every year.—W. W. Keen.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading matter

SATURDAY, JANUARY 26, 1918

As a result of the congested and chaotic condition of the railroads which has prevailed for many weeks, there naturally has been a derangement of the postal service. This is especially true as it applies to second-class matter. Because of this condition some of our readers have not been receiving, and will not receive, their JOURNAL as regularly, or as early, as they did during normal conditions. Now the necessity of closing each Monday is introducing further complications: This means the loss of one full working day each week, and may not only increase the delay in the delivery of THE JOURNAL, but also make it necessary occasionally to decrease its size.

A reminder: For the sake of economy we are delaying sending bills to Fellows and subscribers, hoping that the majority will remit without subjecting the Association to the expense of billing. Thus far the response to our appeal[1] has been extremely gratifying. But there still are many from whom we have not heard.

THE FOOD OF THE POORER CLASSES IN WAR TIME

Modern philanthropy has been contrasted with the more haphazard forms of charitable undertakings of the past by the designation "enlightened philanthropy." It aims not only to bring relief to the situations that demand help, but also to investigate the causes of the difficulties at issue, and to seek to avert or ameliorate them. It has often been said that the poor are always with us. The present war, however, has with unanticipated emphasis directed attention to those dependent for help on the public. The rapidly rising cost of living has tended to aggravate the hardships of all who are properly recipients of charity, so that they have in numerous instances been placed in most unfortunate situations. Now, more than ever before, it is essential to have helpful information which shall direct the policy of providing the necessities of life in an efficient and sympathetic manner. Food is foremost among the factors that determine human welfare. In times of stress it is of paramount importance, therefore, to have the expenditures for nutrients made in such a way as to secure the best return for the money spent. Indeed, this is equally true, whether the outlay involves the private purse or the funds of philanthropic agencies.

Sociologic workers and students of the nutrition of the people are well aware that consideration of changes in the dietaries of large groups must start with an understanding of their food habits. These form the basis for the initiation of changes in the dietary; they also underlie the question as to the adequacy of any regimen. Only by appreciating the purchasing habits of people can we hope to determine whether they are being suitably nourished, so far as present information will permit an answer to this problem, and, if not, what changes are indicated as desirable.

Two recent investigations have a peculiar timeliness in this regard. One of them, a study of the adequacy and economy of some city dietaries, conducted by Sherman and Gillett[1] under the auspices of the New York Association for Improving the Condition of the Poor, represents the exact records of the amount and cost of the food eaten by each of 102 families living in cities, for a period of seven days in 1914-1915. The data thus secured were subjected to critical analysis from the standpoint of the expert in nutrition. The second investigation, authorized by the League for Preventive Work[2] in Boston, presents a somewhat similar analysis of the food problem affecting a large number of families of limited means in a large city. Both reports agree in a general way in finding that these families depend chiefly on bread, cereals, potatoes and meat (with some fish and eggs), with a full allowance of sugar, a moderate supply of butter and other fats, and a small amount of milk, vegetables and fruits. The weekly distribution of expenditures for the various groups, classified by the incomes of the families, was found last July to be as follows:

Family Income	Expenditures for: Meat, Fish and Eggs	Fruit, Fresh Vegetables, Legumes and Potatoes	Milk	Flour, Cereals, Bread, etc.
From $10 to $14....	$2.92	$1.43	$1.41	$2.36
From 15 to 19....	3.32	1.82	1.53	2.28
From 20 to 24....	4.12	1.94	1.45	2.52
From 25 to 29....	3.30	1.85	1.95	3.52

The largest expenditure for any one type of food is always for meat, the outlay for this being very rarely less than two dollars in a week, and sometimes amounting to over five dollars. In the record of ninety-two families, an average of 33 per cent. of the expenditure for food was for meat and fish. We are not prepared to conclude as unequivocally as do the investigators quoted that more meat is purchased than is necessary. This much seems certain, however, that

1. See yellow insert in THE JOURNAL, Dec. 29, 1917.

1. Sherman, H. C., and Gillett, L. H.: The Adequacy and Economy of Some City Dietaries, Pub. 121, Bureau of Food Supply, New York Association for Improving the Condition of the Poor, New York, 1917.

2. Food Supply in Families of Limited Means, a Study of Present Facts of the Food Problem in Boston Families, League for Preventive Work, Boston, December, 1917.

the greater the expenditure for meat, the more expensive the dietary for adequate energy. It was found in most cass that the calories decreased gradually with the increase in the total expenditure for meats.

The figures for milk consumption are of special significance. From the Boston data it appears that over 40 per cent. of the families studied purchased only a quart a day or less. In a study of more than 1,200 persons, including about 500 children, in these families, only about half a pint, or a glassful a day, was the average allowance of milk for all purposes, including its varied culinary uses. Yet even the moderate allowance of two-thirds quart per day per child, and one-third quart for adults, would have required a doubling of the purchase of milk. THE JOURNAL has repeatedly emphasized the unique value of milk in the dietary, and the pressing need of maintaining and even extending the present supply. To mention a single element, over 57 per cent. of the total calcium intake in nearly a hundred families of the classes here considered was derived from milk and cheese. If calcium is admittedly important, especially when there are small children, in the light of the foregoing actual experiences, milk ought to be made more accessible. Davis[3] has pointed out, furthermore, that a vigorous and persistent educational campaign must accompany any practical steps to cheapen milk or to distribute it more economically, else the latter efforts may meet as disappointing a response as did the "skim milk" campaign last summer in Boston. People must be taught the value of milk as food, says Davis, and in particular to look on it as a necessary food for children.

In view of the present shortage of sugar, it is interesting to note that 123 Boston families of the poorer classes bought between 4 and 7 pounds of sugar per week, the amount per person being on the average about three quarters of a pound. This is surely a generous allowance, and bears out the assertions of the Food Administration regarding the extreme liberality in the use of this foodstuff in the United States. On the other hand, the use of fruits and vegetables is all too limited among the poorer classes. The use of more milk with its unique constituent fat might make it safer to reduce the amount of high priced butter in the dietary, and increase the amount of less expensive fats of the oleo class.

It is thus interesting and important to find, among the families of the less well to do, errors in selecting foods which would seem, as Davis puts it, to be corrected by the same recommendations as the war demands for military reasons. Less meat, less sugar, more local products, among which vegetables are prominent, the use of substitutes to lower the costs — these are the war-time demands. The individual and the military demands thus run together; but as the Boston investigators remind us further, to change the food habits of any particular family does not become much less difficult because of this coincidence.

AN INTERPRETATION OF SOME INTESTINAL FACTORS IN EXPERIMENTAL SCURVY

We recently called attention to the changing point of view which several prominent investigators of that form of experimental scurvy which most closely resembles human scorbutus are taking toward the etiology of the disease.[1] The theory that scurvy is a representative "deficiency disease" caused by the lack of suitable "vitamins" or other so-called accessory food substances in the diet—a view originally encouraged by the well tested analogy of vitamin deficiency in the case of beriberi—is being supplanted by considerations of another sort. Thus it is being maintained that the lack of suitable "ballast" in the diet, especially in the case of individuals or species which are adapted to voluminous alimentary contents as an aid to the discharge of feces from the bowel, is a predisposing cause.[2] In explanation of the untoward results of a ration devoid of feces-producing factors, it is alleged that impaction of the cecum may cause mechanical injury to the intestinal wall.

Granting the validity of such an assumption, at least two serious consequences may be expected: An irritated bowel may permit access of bacteria to the tissues and thus become responsible for an invasion of microorganisms, or injury may result from the continued absorption of toxic products of bacterial putrefactive changes in the pent up contents of the bowel.

At the University of Illinois, Karr and Lewis[3] have tested one of these possibilities. Reminding us that the phenols of the urine derive their origin largely from the bacterial decomposition of protein derivatives in the intestine,[4] Karr and Lewis have investigated the urinary output of phenols in animals that have developed the scurvy caused by the exclusive feeding of cereals. It is believed that any marked increase in the bacterial action would be manifest by an increased phenol excretion in the urine, especially since the retention of feces should afford optimal conditions for the absorption of the products of putrefaction. On the other hand, it was realized that phenols are not the only toxic products of bacterial action: that they are derived only from the putrefaction of the aromatic amino-acids, and are therefore not absolute indexes of the intensity of bacterial processes in the intestine.

The outcome of these studies was negative. No changes in the urinary elimination of phenols or in the degree of conjugation of the phenols was observed, provided the factor of partial starvation was ruled out. This outcome may exclude the probability of any increased bacterial action in the intestine of scorbutic

1. Vitamin Hypothesis in Relation to Alleged Deficiency Diseases, editorial, THE JOURNAL A. M. A., Dec. 15, 1917, p. 2040.
2. McCollum, E. V., and Pitz, W.: Jour. Biol. Chem., 1917, **31**, 229.
3. Karr, W. G., and Lewis, H. B.: The Phenol Excretion of Guinea-Pigs Maintained on an Exclusive Oat Diet, Am. Jour. Physiol., 1917, **44**, 586.
4. Compare Folin and Denis: Jour. Biol. Chem., 1915, **22**, 309. Dubin: Ibid., 1916, **26**, 69.

subjects sufficient to ascribe the pathogenic factor to an intestinal toxin. At any rate, phenols are not involved. It does not preclude the other possibility of bacterial invasion, a feature recently emphasized in the case of infantile scorbutus by Hess,[5] and also by the bacteriologic findings of Jackson and Moore[6] in the case of scorbutic guinea-pigs. Evidently the theories of the origin of scurvy are to be subjected in the immediate future to searching criticism.

TESTS OF ALIMENTARY HYPERGLYCEMIA AND GLYCOSURIA

A prominent aim in the management of diabetes is the production of increased tolerance for carbohydrate (and presumably also for the other foodstuffs) by the patient. The degree of success in this direction has been measured as a rule by observing the effect of definite intakes of starch or sugars on a single symptom, glycosuria. A moment's consideration suffices to show that the results of this method may be determined by no less than two factors: one, a metabolic factor related to the actual capacity to utilize absorbed carbohydrate; the second, an alteration in renal permeability that might occur quite independently of any more general alteration in the capacity to oxidize or transform sugar.

Both of these factors deserve to be taken into consideration. In an elaborate study of blood sugar at the Medical Clinic of the Johns Hopkins Hospital, Hamman and Hirschman[7] have thus presented the problem: Sometimes otherwise normal persons have a low renal threshold and sugar appears in the urine, although the blood sugar is only a little raised; more commonly still, renal permeability is decreased and little sugar or none comes out in the urine, although the blood sugar mounts to a high level. Under such circumstances one would conclude erroneously, in the first instance, that the patient had a low sugar tolerance; in the second instance, a high sugar tolerance.

The Baltimore investigators point out that it would be a decided advantage if we could give a single and constant dose of glucose, and from a study of the patient's reaction satisfactorily determine the sugar tolerance. Woodyatt and his collaborators in Chicago have pointed out the shortcomings of methods of ascertaining sugar tolerance that are based on alimentary administration of the carbohydrate.[8] In many respects their contentions are decidedly valid. The difficulties of suitable intravenous injection in studies of tolerance are not insuperable, as the newly devised and highly ingenious technic of Woodyatt and others demonstrates; but they are nevertheless sufficiently formidable not to be minimized.

On the basis of extensive observations made in a considerable variety of cases, Hamman and Hirschman have suggested a combination test of alimentary hyperglycemia and glycosuria to obtain an insight into carbohydrate economy. The patient to be tested receives 100 gm. of glucose in a lemonade in the morning after a night fast. The blood sugar is estimated before the glucose feeding and at subsequent intervals of one-half, one, and two hours. The urine also is examined. The fundamental purpose of the plan is to note whether the "curve" of blood sugar content, which is known to rise in a characteristic way after ingestion of glucose, is altered in abnormal cases. Under the usual, normal circumstances, administration of 100 gm. of glucose produces only a moderate hyperglycemia that rapidly subsides, the blood sugar remaining below 0.15 per cent. and again reaching the fasting level or in many instances a still lower level in from one to two hours. The renal threshold for glucose in normal persons is between 0.17 and 0.18 per cent. of blood concentration, though occasional otherwise normal persons have a low renal threshold, that is, below 0.14 per cent.

The reaction of diabetics to the ingestion of glucose is very different from the reaction of normal persons. In patients with a lowered carbohydrate tolerance, notably in diabetes, according to Hamman and Hirschman, the hyperglycemia is more pronounced and more prolonged, the blood sugar usually exceeding 0.2 per cent. and the reaction lasting from three to five hours. They state that as far as may be judged from the alimentary test, the disturbance of glucose utilization is essentially the same in diabetes and in other conditions with low sugar tolerance, such, for instance, as is commonly found in nephritis and in deranged thyroid and hypophysial function. In speaking of diabetes, it is noted that apparently the duration of the hyperglycemia is more important than the height of the reaction as an index of the severity of the alteration of carbohydrate metabolism.

The observations show, further, that in many cases of nephritis there is a profound change in carbohydrate metabolism, the blood sugar curve after the ingestion of glucose resembling the "diabetic curve." When there is marked interference with renal function, very small amounts of sugar, if any, appear in the urine, although the blood sugar may go above 0.2 per cent. Mild cases of diabetes usually have a normal threshold; many severe cases have a lowered threshold. This lowered threshold may be a factor in the severity. As the kidneys excrete sugar there is a tendency for the threshold to fall so that although sugar may first appear when the blood sugar reaches 0.17 per cent., sugar may still be excreted after it has dropped to 0.1 per cent. How extensively the renal function may

5. Hess, A. F.: Infantile Scurvy, V, A Study of Its Pathogenesis, Am. Jour. Dis. Child., November, 1917, p. 337.
6. Jackson, Leila, and Moore, J. J.: Jour. Infect. Dis., 1916, **19**, 478.
7. Hamman, Louis, and Hirschman, I. I.: Studies on Blood Sugar, Arch. Int. Med., November, 1917, p. 761.
8. Woodyatt, R. T.: Sansum, W. D., and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, THE JOURNAL A. M. A., Dec. 11, 1915, p. 2067.

become impaired in diabetes has lately been demonstrated anew by Fitz.[9]

Hamman and Hirschman believe that their combined test of hyperglycemia and glycosuria is particularly valuable for investigating patients with slight or occasional glycosuria. It decides at once whether the glycosuria is due to a metabolic disturbance, to a low renal threshold, or to a combination of both factors. If the renal threshold is high, it may indicate a more serious disturbance of glucose utilization than the slight glycosuria would suggest. Even if the essential features are no longer novel, any procedure of comparable simplicity which can give such important information cannot be devoid of clinical value.

CEREBROSPINAL MENINGITIS IN THE ARMY

Unfortunate as it is that cerebrospinal meningitis has been disturbingly prevalent in some of the cantonments, it seems probable that our knowledge of the disease will be increased as a result of the intensive study that has been made possible by the outbreak. Competent men are actively engaged in the diagnosis and treatment of this malady, and new observations of importance have already been made. The discovery of still other facts may with confidence be predicted.

In the effort to arrive at a positive diagnosis earlier in the disease than has heretofore been considered possible, attention has been focused, as noted by Herrick,[10] on the petechial exanthem, which, when carefully looked for, is found to appear very early, indeed, earlier than either Kernig's sign or Brudzinski's sign, and before rigidity of the neck or recognizable changes in the cerebrospinal fluid. The old name for the disease, "spotted fever," has again come into its own.

Another discovery, apparently of considerable significance, is the observation that, at a very early period in the course of the disease, two successive lumbar punctures, made at intervals of a few hours, may lead to the positive demonstration of pus cells and meningococci in the cerebrospinal fluid obtained by the second puncture. The fluid obtained at the first lumbar puncture made at the time the petechial rash appears is often sterile, whereas the fluid obtained at a second puncture a few hours later (and at a time when a primary puncture would be negative) will contain both intracellular and extracellular meningococci. It has been suggested that this observation may be legitimately interpreted on the assumption that the meningeal infection begins within the skull, the spinal meninges becoming infected by direct extension only later, and that by the removal of clear fluid from the spinal subarachnoid space at a first puncture, the infected fluid from above reaches the spinal area earlier than would otherwise be the case, so that the second lumbar puncture permits the examiner to determine a few hours after the first puncture the occurrence of the meningeal infection and its meningococcal etiology.

A third contribution of no small consequence consists in the enumeration of the meningococcus carriers in the camps, and the determination of the relatively large number of carriers among those that have been in contact with meningitis patients, in contrast with the relatively small number discoverable among "noncontacts." The exact figures in the different camps will doubtless be compiled and reported later on; they should be of real value in clarifying our ideas regarding modes of infection, and in applying practical methods of prophylaxis. It seems probable that the methods now being used to disinfect the carriers will prove satisfactory for hosts in whom the meningococci are present only in the nasopharynx, though other methods will have to be devised to sterilize carriers in whom the meningococci are located in less accessible regions (such as the depths of the paranasal sinuses).

It is reported, too, that blood cultures made very early in the course of the disease reveal surprisingly often the presence of meningococci in the circulating blood. Heretofore, it has been assumed that the infection of the sheath of the nervous system occurs by direct extension from the nose to the cerebral meninges through the cribriform plate of the ethmoid. The result of the blood cultures referred to above would lend support to the view that the meningococci first enter the circulating blood, and are only secondarily deposited in the cerebral meninges by way of the blood vessels. If this discovery is confirmed, the Army physicians will have a fourth important observation to their credit. This conception of a hematogenous infection of the meninges would, of course, involve as its corollary the existence of some local susceptibility that determines the invasion, in at least the majority of the cases, of the cerebral before the spinal meninges.

Finally, it would appear that a new fact therapeutically useful in meningococcal meningitis is about to be established. Acting on the basis of the early meningococcemia that, it is asserted, has been demonstrated, some of the Army physicians have been treating meningitis patients by intravenous injections of large doses of antimeningococcus serum as soon as the diagnosis is made, with better results, it is maintained, than when intraspinal injections alone are used.

Time will, of course, be required adequately to test these new ideas. But from all appearances it seems likely that data of incalculable value for the diagnosis and the therapy of epidemic cerebrospinal meningitis are being brought to light by these investigations. If present expectations are realized, not only will the lives of many soldiers be saved, but also through these war-time studies the resources of the civil practitioner in times of peace later on will be definitely enriched.

9. Fitz, Reginald: Observations on Kidney Junction in Diabetes Mellitus, Arch. Int. Med., November, 1917, p. 809.
10. Herrick, W. W.: The Epidemic of Meningitis at Camp Jackson, THE JOURNAL A. M. A., this issue, p. 327.

Current Comment

DENTAL CARIES

So little is definitely known regarding the metabolic or nutritional changes which the teeth experience in the course of their development that even the larger textbooks of physiology have little or nothing to say on this subject. It must be evident, however, that aside from the intrinsic interest in the knowledge of the processes of dental development as such, no fundamental understanding of the nature of dental caries can ever be expected until the physiology of the teeth has been extended in the field just indicated. For several years, Gies and his collaborators in the Biochemical Laboratory of the Schools of Medicine and Dentistry of Columbia University have been engaged in investigations of the problems of dental physiology, pathology and chemistry. Recently Gies[1] has pointed out that unless substances originating outside of the enamel can enter or superficially affect the cells involved in the production of this substance, it is scarcely justifiable to assume that such dental development can be influenced to any extent through products circulating in the blood. However, experiments have now shown that after intraperitoneal injection, a dye like trypan blue passes freely into the enamel of developing teeth, where the blue pigment seems to remain indefinitely; it does not pass from pulp through dentin into enamel of fully erupted teeth. Furthermore, after the oral administration of strontium salts daily for some time to young animals, this element accumulates in the solid parts (and is present in the pulp) of the first and second sets of teeth, apparently taking the place of calcium. In a further endeavor to ascertain whether "influences from the inside," as Gies terms those of a nutritional type and involving internal secretions, may be responsible factors in the incidence of dental caries, the effects of a withdrawal of normal nutritive influences possibly exerted by some of the endocrine glands were tested. As a result it is reported that there were no effects on dentition after thymectomy, thyroparathyroidectomy and castration; deficient calcification of the teeth (incisors) followed parathyroidectomy. When various gland products were fed to white rats, dental calcification appeared to be (*a*) regularly decreased by oral administration of lymphatic, salivary or thyroid gland; (*b*) regularly increased by oral administration of testicle, and (*c*) wholly unaffected by oral administration of corpus luteum, parathyroid, pineal, pituitary, spleen, suprarenal or thymus. If the decay of teeth is associated in any degree with local deficiency in the structure and quality of the enamel, experiments like these are likely to help in the interpretation of what is at best a complex problem. As Gies points out in connection with his findings, whether or not there is true nutritive or maintenance metabolism in normal enamel, there may be physiologic or pathologic exchange of materials in enamel by diffusion from blood through dentin and enamel to oral fluids, and vice versa. We must bear in mind, however, that decay may perhaps arise regardless of the normality of the enamel; for teeth are always liable to trauma and to local specific disintegrative influences capable of initiating or paving the way for harm quite independent of the composition of the teeth.

1. Gies, W. J., and Collaborators: Studies of Dental Caries, with Special Reference to Internal Secretions in Their Relation to the Development and Condition of Dental Enamel, Proc. Soc. Exper. Biol. and Med., 1917, **15**, 5.

THOSE ANTIVIVISECTIONISTS

Last week, in connection with the publication of a letter from medical officers in France relative to medical military research being conducted there and a suit brought in this country by certain notoriety seeking members of the Red Cross, THE JOURNAL quoted a statement from the Chicago *Herald* significant of the enlightened attitude of the American press on this question. As further examples we quote from the New York *Times*, which, heading its statement "A Monstrous Appeal to Court," says:

> It is hard to believe that anybody with enough of intelligence and patriotism to join the Red Cross would object to the appropriation by that organization of a reasonable amount of money to be used in research work by the men who are protecting the health of our soldiers in France and preparing to take care of them when wounded. That the Red Cross really is afflicted by the existence among its members of persons so lost to reason has been made lamentably evident, however, by an application that has been made in the Federal District Court for an injunction restraining the Red Cross from using money for what they describe as "a laboratory for experiments in vivisection."
>
> Such an expenditure—the amount involved is $100,000—they say will disrupt the Red Cross! If true, the injunction should issue and be made permanent, but surely not many members of the Red Cross are suffering from this form of madness, and it seems impossible that any court would interfere with the carrying out of a plan that has, as Henry P. Davison, chairman of the Red Cross War Council, has patiently explained, the explicit and enthusiastic indorsement of all the medical authorities whose personal knowledge of conditions and needs in France gives them a right to speak on the subject.

The *Courier-Citizen* of Lowell, Mass., calls attention to the fact that the present war is in some respects far more humane than any previous war, because the efforts of medical science have more than kept pace with the destructive ingenuity of man. Comparative statistics are cited proving its statement. The *Courier-Citizen* then goes on to say:

> Every advance that medical science has made in this line has had to fight its way against fanatical opposition. There are still people in the world who fairly foam at the mouth if one mentions vaccination, and many who argue vehemently against the inoculation against typhoid because it revolts them to think of pumping bacilli by artifice into a body that is for the moment innocent of disease. Hundreds of estimable people regard the advances made by medical and surgical science, so strikingly revealed by the figures in this war, as being no adequate return for that mysterious and awful form of research which is termed "vivisection," greatly preferring that the noble race of guinea-pigs should enjoy an untroubled existence regardless of what happens to mankind!

Early Marriages.—Nature fixes puberty at the age of 15, but the majority of men do not marry until 25 or 30. Thus for more than ten years Nature is reminding the man, day and night, of what she considers his duty.—A. Fournier.

Medical Mobilization and the War

HEALTH OF AMERICAN SOLDIERS OVERSEAS AS COMPARED WITH CONDITIONS AT HOME

The accompanying figures on health conditions in the American Expeditionary Forces are from reports cabled to the Surgeon-General of the Army. Similar figures for comparison are given for all troops in the United States (except the Aviation Section of the Signal Corps). No report analyzing and summarizing the figures from the Expeditionary Forces is cabled, so no explanatory statement is available.

All "admission rates" in these figures are based on the number of new cases first reported during the week ending January 10 (week ending January 11 for troops in the United States) worked out at the rate per thousand men. The "noneffective rate" is arrived at by taking the total number of men excused from duty for any injury or ailment (whether or not ordered to hospital) and computing the ratio per thousand:

	Expeditionary Forces	Troops in U. S.
Noneffective rate	54.1[1]	46.4[2]
Admission rate:		
Injury and disease	45.2	33.7
Disease only	42.0	32.2
Pneumonia	1.0	0.7
Venereal disease	1.1	1.4
Measles	1.5	2.0
Meningitis	0.05	0.09
Scarlet fever	0.5	0.1
Typhoid fever	0.01	0.001

1. January 10. 2. January 11.

The death rate for the Expeditionary Forces is not given because each death, with the cause and date on which it occurred, is published in *The Official Bulletin*, and these reports, together with the death rate for a given period, would make it possible to compute the strength of the American Expeditionary Forces.

THE RESPONSE OF THE MEDICAL PROFESSION—AN IMPRESSION

Heretofore, in America, interest has centered in impressions gained in the war areas of Europe. Of even greater interest just now is an impression of the twilight of war in America. Since sailing from the States, there has run through my mind an impression—a strong impression gained during my very pleasant duty there.

It was the remarkably creditable response of the medical profession. Everywhere the professional man was earnest, grave, patriotic—ready for any sacrifice required in the performance of his duty. What an honor to the corps that the medical men were first in the field; the first wounded; the first killed in the field; the first to make up its full quota; the corps with the largest reserve, and the most completely organized corps of the Army.

What a tribute to the regular Army Medical Corps and the civilian Medical Corps that, despite the many differing points of view, complete harmony existed from the beginning up to the present. All this reflects honor on every physician, whether civilian or regular Army officer.

G. W. CRILE, Major, M. R. C., U. S. Army.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Jan. 11, 1918

1. Annual admission rate per 1,000 all troops in U. S. (disease only) (except aviation section, signal corps)..... 1,674.0
   Noneffective rate per 1,000 on day of report..... 46.4
2. National Guard Camps—
   Admission rate per 1,000 all divisions (disease only).....1,547.8
   Noneffective rate per 1,000 on day of report..... 48.2
   Divisions showing admission rate for disease higher than average: Camps Wheeler, Beauregard, Kearny, Bowie, Shelby and Doniphan.
   Divisions showing noneffective rate higher than average: Camps Beauregard, Wheeler, Bowie, Kearny, Doniphan and Shelby.
3. National Army Camps—
   Annual admission rate per 1,000 all divisions (disease only).. 1,942.1
   Noneffective rate per 1,000 on day of report (all divisions).. 48.9
   Divisions showing admission rate for disease higher than average: Camps Travis, Pike, Dodge, Funston and Zachary Taylor.
   Divisions showing noneffective rate higher than average: Camps Travis, Dodge, Pike, Funston, Lee, Jackson, Zachary Taylor and Gordon.
4. Venereal Diseases—
   Annual admission rate Regulars in United States..... 97.8
   Annual admission rate National Guard (Divisions in U. S.).... 89.9
   Annual admission rate National Army (Divisions in U. S.).... 54.4
   National Guard camps having rate above average: Camp Logan.
   National Army camps having rate above average: Camps Dix, Dodge, Jackson, Custer, Zachary Taylor, Upton and Lee.
5. Number of cases of pneumonia..... 829
   Highest number in any one camp (Travis)..... 94
   Number of cases of meningitis..... 100
   Highest number in any one camp (Beauregard)..... 16

6. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING JAN. 11, 1918

Divisions	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet fever	Deaths	Noneffective rate per 1,000 day of report
Wadsworth	11	...	1	23	..	..	...	1	..	1	31.1
Hancock	4	...	...	22	..	..	2	3	..	1	24.0
McClellan	5	...	...	23	..	..	34	3	5	2	35.2
Sevier	28	...	2	27	..	..	4	...	..	4	34.5
Wheeler	47	...	3	28	..	..	...	...	..	11	85.2
MacArthur	45	1	...	34	..	..	102	...	12	7	45.1
Logan	5	...	...	66	..	..	42	..	1	0	31.6
Cody	31	...	...	9	..	..	18	2	..	6	45.2
Doniphan	30	...	...	27	..	..	80	10	..	17	57.0
Bowie	46	...	...	20	..	..	2	..	2	7	77.7
Sheridan	8	...	...	5	..	2	19	..	1	0	23.3
Shelby	12	...	1	27	..	..	2	..	..	5	56.1
Beauregard	11	...	8	13	..	..	7	16	..	18	95.0
Kearny	14	...	...	28	..	..	34	..	15	5	76.4
Devens	5	...	...	23	..	..	57	..	..	0	32.8
Upton	16	...	...	40	..	..	1	1	1	1	29.0
Dix	19	...	2	51	..	..	27	..	1	1	38.1
Meade	22	...	...	18	..	..	32	3	3	1	28.9
Lee	24	...	...	35	..	..	74	1	..	21	65.2
Jackson	19	...	...	41	..	..	10	13	..	12	58.4
Gordon	22	...	...	15	..	..	269	4	..	8	49.8
Sherman	3	...	...	6	..	..	105	3	15	4	36.4
Taylor	24	...	...	38	..	..	92	2	1	8	51.3
Custer	11	...	...	45	..	..	23	..	2	2	38.5
Grant	9	...	...	18	..	..	67	1	7	4	32.5
Pike	41	...	...	32	..	..	116	1	47	41	71.0
Dodge	13	...	...	45	..	..	65	1	11	7	71.5
Funston	10	...	...	11	..	..	10	1	3	11	60.4
Travis	94	...	...	13	..	..	14	1	2	18	76.6
Lewis	4	...	...	30	..	..	75	4	17	6	47.9

7. ANNUAL RATE PER THOUSAND FOR SPECIAL DISEASES

	Regulars, U. S. Army, in U. S. only, 1916*	Regulars in U. S., Week Ending Jan. 11, 1918	National Guard, All Camps, Week Ending Jan. 11, 1918	National Army, All Camps, Week Ending Jan. 11, 1918	American Expeditionary Forces, Week Ending Jan. 10, 1918
Pneumonia	2.99	27.7	48.1	40.2	52.9
Dysentery	3.97	0.8	0.1	0.0	1.7
Malaria	12.32	1.7	1.9	0.2	0.8
Venereal	91.23	97.8	89.9	54.4	57.5
Paratyphoid	0.31	0.0	0.0	0.0	0.0
Typhoid	0.21	0.2	0.3	0.0	0.6
Measles	20.28	107.4	57.1	136.7	77.5
Meningitis	0.29	5.4	4.8	4.1	2.6
Scarlet fever	0.59	5.8	5.1	12.6	27.7

* Enlisted men only, both white and colored.

MEETING OF GENERAL MEDICAL BOARD

The General Medical Board met in Washington, January 13, twenty-six members being in attendance. Resolutions were adopted on the death of Drs. Theodore Janeway and Everett J. McKnight, and sanitary reports for the Army, Navy, Public Health Service and Red Cross were read. Col. Dean C. Howard discussed the recent epidemics of measles and pneumonia, and stated that these epidemics were under adequate control. He also stated that the status of the troops in regard to venereal problems was satisfactory. Admiral William C. Braisted furnished assurance that the health conditions in the Navy were all that could be desired, and expressed great gratification over the granting of a request for a meningitis segregation camp in Florida.

Dr. Joseph Schereschewsky stated that the Public Health Service had been doing satisfactory work in the various extracantonment zones which were in a state of good health. Dr. T. Clark reported the establishment of four sanitary units to cooperate with other sanitary forces of the government, and stated that the Red Cross was glad and willing to spend all that was legitimately necessary to accomplish any worthy purpose. Major William F. Snow reinforced the remarks of Colonel Howard and emphasized the need for continuous effort in regard to venereal disease curtailment. The Surgeon-General of the Army expressed satisfaction with the present state of health in the Army, and cautioned against the possible mistake of referring the pneumonia epidemics entirely to the cold weather, believing that the close housing is a significant factor. Major M. G. Seelig explained the principles involved in the daylight saving propaganda. A daylight saving bill has been passed by the United States Senate, and will come before the House of Representatives in the present session. The council adopted resolutions endorsing the plan. Dr. S. McC. Hamill reported that this committee has decided to center its attention on the preparation of a program covering the welfare of the mother, provision of intelligent obstetric care, and the protection of the life and health of the child during its first two years. He presented a resolution directed toward securing the cooperation of the medical schools of the country in this work. Dr. Francis D. Patterson presented a paper pointing out four distinct lines of effort essential in solving the problem of reconstruction. These are medical and surgical treatment of the injury and disease, vocational training, securing of employment, and maintenance of medical supervision of the man after he has gone back into industry. Dr. Joseph Schereschewsky reported the aims of the Committee of Industrial Surgeons in preventing industrial diseases. Dr. Edward P. Davis of Philadelphia submitted a report advocating the establishment of a medical service corps to utilize the services of those men disqualified from receiving a commission. Dr. A. Homer Smith reported on the drug situation, pointing out the urgent need of supply and conservation. Dr. Philip S. Doane, who has been assigned to duty with the Shipping Board, outlined the medical activities carried on in connection with this board. Dr. J. Bentley Squier read the report of the Committee on General Surgery, stating that progress is being made in classifying the surgeons of the country. Miss Ella Phillips Crandall reported that this committee has made inquiries into the question of suitable provision for the nursing care of returned soldiers and sailors in the reconstruction hospitals. Major John D. McLean reported that this committee had formulated and secured the approval of the Surgeon-General's Office for rules of procedure for medical advisory boards. All of the governors' aids have been appointed and have been received with hearty accord. Dr. Rosalie Slaughter Morton reports that this committee has registered 1,796 women physicians, and it is hoped that these women physicians may be used to help meet the need of interns, laboratory workers, roentgenographers and anesthetists. Dr. Vaughan emphasized the necessity of close cooperation between civilian authorities and military authorities in the regulation of health matters, and expressed the hope that such cooperation would be established.

HEALTH REGULATIONS IN EXTRA-CANTONMENT ZONES

The states and municipalities are rallying promptly and willingly to the support of the United States Public Health Service in the protection of health in military camps and extracantonment zones. According to a recent bulletin issued by the United States Public Health Service (*Public Health Reports*, 1918, **33**, 4), cooperation of the local with the federal authorities has called forth a host of ordinances and regulations relating to the control of communicable and venereal diseases, the sale of foodstuffs, the production and sale of milk, the disposal of human excreta, and the sanitary condition of barber shops.

For the protection of the Camp Greene extracantonment zone, Charlotte, N. C., has recently passed an ordinance requiring every physician to make in writing a full report of all cases of communicable disease from diphtheria to syphilis, within twenty-four hours after he has been called or has made a diagnosis. In cases of gonococcus infection, chancroid and syphilis, the record kept by physicians are always open to inspection by the health officers of the city, but not to public inspection.

For the benefit of the Camp Lee extracantonment zone, Richmond, Va., has passed an ordinance requiring a permit of all merchants who expose foodstuffs for sale, and forbidding the maintenance of stables or dairy farms within the city limits for the production of milk. Special provision is made for the inspection of all places where food supplies are handled. If insanitary conditions are discovered, the permit may be suspended or even revoked.

On behalf of the Camp Sheridan extracantonment zone, Montgomery, Ala., has passed a series of ordinances requiring all residences and other buildings occupied by human beings to be equipped with sanitary vaults or similar receptacles for receiving human excreta.

Another example of sanitary regulations enforced by the United States Public Health Service in the neighborhood of cantonments is the supervision of barber shops in the civil zone around Camp Pike, near Little Rock, Ark., where soldiers are not permitted to patronize shops not certified by the federal authorities. Among the most important requirements for certification are the demands that every worker in the barber shop serving men in uniform shall be free from communicable disease or venereal disease in a communicable stage, and that all shaving paraphernalia shall be cleansed and sterilized by steam, boiling water or alcohol.

Within the last few months, the State Public Health Council of New York has amended the sanitary code, empowering the state commissioner of health to declare any territory near a cantonment a health zone, and to grant permits for the sale of food, which undergoes monthly inspection by the health officers. The commissioner or the local health officer, may revoke any permit, after giving its owner a chance to be heard.

DISEASE INCIDENCE AMONG TROOPS IN THE UNITED STATES

The accompanying five charts show the disease incidence among troops in the United States for the period from Sept. 14 to Dec. 28, 1917.

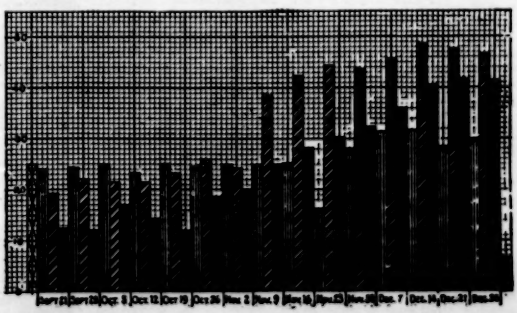

Chart 1.—Noneffective rate per thousand on day of report, 1917. In this and the accompanying charts, the data for the Regulars are represented by vertical blocks, for the National Guard by diagonal blocks, and for the National Army by solid black blocks.

TABLE 1.—NONEFFECTIVE RATE PER THOUSAND ON DAY OF REPORT

Date, 1917	Regulars	National Guard	National Army
Sept. 21	24.0	19.3	12.6
Sept. 28	24.4	22.2	12.1
Oct. 5	24.9	21.8	17.3
Oct. 12	23.6	21.8	14.6
Oct. 19	25.3	23.5	12.0
Oct. 26	24.9	26.0	18.7
Nov. 2	25.0	24.5	20.1
Nov. 9	25.2	38.9	25.2
Nov. 16	25.6	42.6	28.5
Nov. 23	16.3	44.5	30.7
Nov. 30	28.0	43.9	32.5
Dec. 7	31.3	45.8	36.0
Dec. 14	31.7	48.6	40.4
Dec. 21	28.4	47.8	41.8
Dec. 28	29.5	46.6	41.2

Chart 1 shows the noneffective rate per thousand on the date of report over the fifteen weeks mentioned. It is at once apparent that the noneffective rate of the National Guard (represented by blocks with diagonal stripes) over the first half of the period is about equal to that of the Regular Army (blocks with vertical stripes), and that beginning with the first week in November it rapidly rose. In the same way the noneffective rate of the National Army (solid blocks), which was on the average less than that of the regulars and of the National Guard during the first half of the period, rapidly rose, corresponding to the rise for the National Guard during the final half of this period. It is perhaps idle to speculate as to the cause for this phenomenon, but if we are to take cognizance of conditions at the various camps during the onset of cold weather, it may be related to the shortage in equipment noted in the report of the commission, headed by Surgeon-General Gorgas, which visited the various camps. Perhaps most important, because of its serious character, is the morbidity from pneumonia, which presented a threatening situation during the months of November and December.

TABLE 2.—ANNUAL RATE PER THOUSAND FOR PNEUMONIA

Date, 1917	Regulars	National Guard	National Army
Sept. 21	1.4	5.7	0.6
Sept. 28	3.4	4.9	2.1
Oct. 5	3.6	3.1	4.5
Oct. 12	1.4	4.2	6.0
Oct. 19	5.4	8.2	12.2
Oct. 26	6.2	15.8	14.9
Nov. 2	6.1	14.0	9.7
Nov. 9	5.4	20.7	22.3
Nov. 16	5.6	28.0	23.6
Nov. 23	9.1	35.7	19.6
Nov. 30	9.3	36.5	17.6
Dec. 7	7.7	58.0	20.2
Dec. 14	6.8	41.6	34.6
Dec. 21	13.9	45.7	25.6
Dec. 28	14.4	47.1	33.0

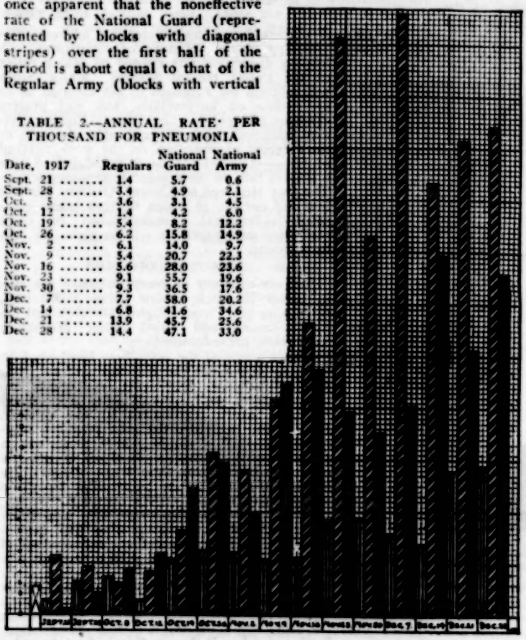

Chart 2.—Annual rate per thousand for pneumonia, 1917.

Chart 2, showing the annual rate per thousand for pneumonia during the fifteen weeks covered by the chart, indicates during September and October the incidence of pneumonia average to be the same for the three departments. Beginning with the last week in October, however, the rates for the National Guard and the National Army commence to rise rapidly, and the National Guard rate during November becomes conspicuous for its severity. During December the National Army rate unfortunately starts to overhaul this serious advance. There are, of course, numerous factors governing this morbidity; for example, it was possible to control the sending of new men into the National Army camps so that orders were sent out not to send new men to certain camps in which the disease incidence was high. There may be some criticism of the chart showing pneumonia. Pneumonia in the camps has been of the types classed pathologically as lobar and bronchopneumonia, both occurring as primary infections or as secondary to measles. It has been said that bronchopneumonia is more frequently secondary to measles, but as yet statistics on this point are not available.

MEASLES

The rate for measles during September and October, shown in Chart 3, again averages about the same for the three departments of the Army. Beginning with the end of October and during November, the rate for the National Guard becomes exceedingly conspicuous, and during December the rates for the National Army, while not quite so high as those for the National Guard during November, are much higher than those for the guard during December.

Meningitis, as is obvious from Chart 4, was far more serious in the National Army camps than in those of the National Guard, which, in turn, were more serious than those in the Regular Army.

The venereal disease rate, in practically every instance, as shown in Chart 5, is higher in the National Army than in either the National Guard or the regulars. It is significant, however, that these rates, while very high during September and October when the new men were first called into camp, steadily diminish, so that during

TABLE 3.—ANNUAL RATE PER THOUSAND FOR MEASLES

Date, 1917	Regulars	National Guard	National Army
Sept. 21	15.0	16.0	9.7
Sept. 28	22.0	30.5	4.9
Oct. 5	18.0	20.7	13.2
Oct. 12	21.2	31.9	12.8
Oct. 19	17.2	32.8	11.5
Oct. 26	19.8	78.8	44.6
Nov. 2	37.3	150.8	98.2
Nov. 9	35.6	451.2	164.4
Nov. 16	27.3	539.9	250.0
Nov. 23	51.7	533.6	167.2
Nov. 30	24.0	299.5	123.4
Dec. 7	37.4	368.0	162.7
Dec. 14	38.6	149.8	265.5
Dec. 21	52.6	115.9	207.8
Dec. 28	66.5	81.5	189.5

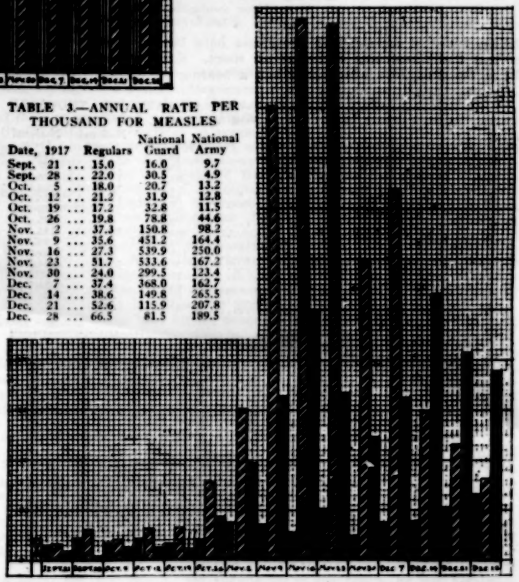

Chart 3.—Annual rate per thousand for measles, 1917.

December the average is about the same for the three departments of the service.

It is, of course, clear that of the diseases shown on the charts, the venereal diseases have caused the greatest morbidity, and that measles and pneumonia have been a most serious and threatening factor at all times. Readers who know the conditions which have had a bearing on disease incidence in our Army, may make various interpretations from the charts.

TABLE 4.—ANNUAL RATE PER THOUSAND FOR MENINGITIS

Date, 1917	Regulars	National Guard	National Army
Sept. 21	0.2	0.0	0.0
Sept. 28	0.7	0.0	0.0
Oct. 5	0.2	0.3	0.0
Oct. 12	0.4	1.6	0.3
Oct. 19	0.4	0.8	0.6
Oct. 26	1.2	1.3	1.6
Nov. 2	0.7	0.4	2.7
Nov. 9	0.0	1.1	2.9
Nov. 16	0.0	1.9	4.1
Nov. 23	1.1	3.7	5.6
Nov. 30	0.2	3.8	3.2
Dec. 7	0.0	5.4	4.1
Dec. 14	0.0	4.2	6.6
Dec. 21	0.4	2.9	8.3
Dec. 28	1.1	4.4	7.4

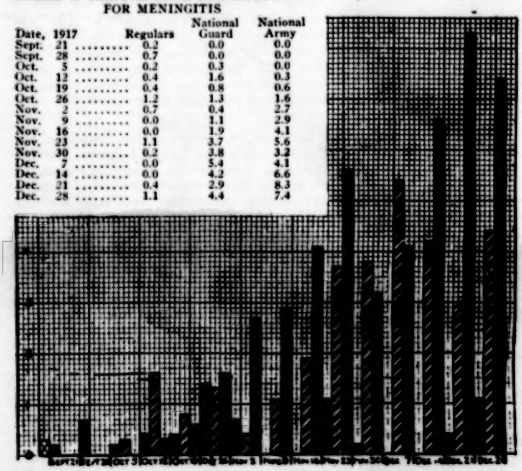

Chart 4.—Annual rate per thousand for meningitis, 1917.

TABLE 5.—ANNUAL RATE PER THOUSAND FOR VENEREAL DISEASES

Date, 1917	Regulars	National Guard	National Army
Sept. 21	83.3	143.9	193.5
Sept. 28	80.5	149.3	387.6
Oct. 5	84.4	155.3	276.5
Oct. 12	51.6	106.2	204.8
Oct. 19	77.8	118.8	146.4
Oct. 26	63.0	134.5	138.7
Nov. 2	90.4	93.6	135.6
Nov. 9	83.5	151.5	115.3
Nov. 16	94.3	74.0	95.3
Nov. 23	165.1	68.0	69.0
Nov. 30	97.4	100.7	104.3
Dec. 7	85.2	77.1	80.1
Dec. 14	69.7	44.6	74.3
Dec. 21	88.6	46.0	66.9
Dec. 28	82.3	43.8	67.1

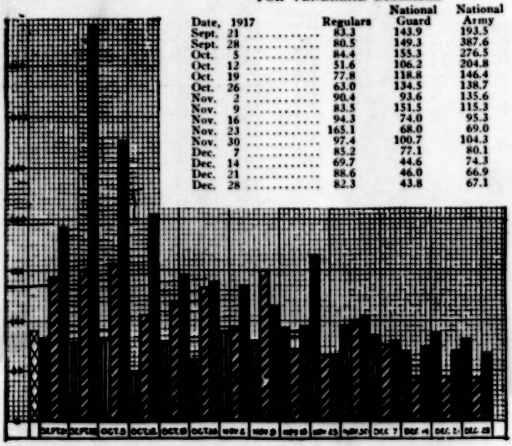

Chart 5.—Annual rate per thousand for venereal diseases, 1917.

NEWS OF THE CANTONMENTS

Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Jan. 15, 1918.

PERSONAL

The medical officers heard an interesting address Friday evening, January 11, on "History of Prostitutes." A lengthy discussion was opened by Major Stiles of the Public Health Service. Major Stiles will address the surgeons of the division at an early date on uncinariasis, and will present cases of pellagra.——The Twenty-Eighth Division surgeons made a creditable showing at their recent examination on the work covered so far.——Colonel Owens is scheduled to give a lantern talk on the present European war.——The One Hundred and Ninth Artillery won the first aid contest, in which thirteen teams competed.——Practical demonstrations of camp sanitation and inspection will be given the men by platoons.

HEALTH OF THE CAMP

Just six men out of every thousand are sick in Camp Hancock, where today 37,000 men, composing the Twenty-Eighth Division and the First, Second and Third Motor Mechanics Regiments, are encamped.

The sick rate of the camp here has been kept infinitely low since the division arrived. The Motor Mechanics Regiments, which are encamped here, were ordered here from every National Army cantonment in the country. Despite the fact that the men of these regiments came from camps where there was a prevalence of contagious diseases, in not one case was a disease that was brought here allowed to spread to any of the other troops on the reservation.

On the arrival of these men, they are immediately placed under quarantine and remain there until a thorough medical examination of them has been made. If some are found with contagious diseases they are immediately isolated.

It was on the advice of Col. W. J. Crookston, division surgeon, that the division commander ordered all tent doors left wide open while the men were sleeping. The fires in the tents must be out one hour before taps. During the day, if the weather is fine, the sides of the tents have been ordered lifted up, so as to give them a thorough airing. Strict regulations are in operation in connection with cleaning the tents and airing the bed clothing.

The nearest National Guard camp to Hancock in its health record is Camp Sheridan, Montgomery, Ala., where the Ohio troops are encamped. The sick rate at that camp is 12 cases per thousand. The nearest National Army cantonment approaching Hancock's record is Camp Custer, Mich., with 8.6 per thousand.

Thirty-First Division, Camp Wheeler, Macon, Ga.

Jan. 18, 1918.

This camp has had storms and changes of weather, from warm and wet to cold with high winds, causing a further increase in the already high sick report. Continued cold would be much more healthful.

INFECTIOUS DISEASES

Mumps is the principal disease in camp at present; 138 cases came in one day. The measles epidemic ran its course in one month, with 3,000 cases. The mumps epidemic has now gone on for six weeks, with more admissions now than one month ago. Altogether there have been 3,324 cases in about 21,000 men. The disease is spread about evenly throughout the division. No serious complications have appeared. While pneumonia killed 20 per cent. of its victims and caused discharge of at least 5 per cent. more, and measles had a death rate of 2 per cent. (from pneumonia) mumps has caused neither deaths nor discharges.

The Florida regiment still leads the sick report with nearly double the average sick rate.

So far the division has had few cases of meningitis. An examination by regiments is now being made for carriers, and all those found to be carriers, or to be suspicious, are placed in an isolation camp. These are treated with dichloramin-T sprays, and reexamined until free from meningococci. An experiment is now being made, by treating carriers with chlorid gas in the gas house. Throats are being examined for the pneumococcus at the same time, and these carriers are being treated with various experimental sprays.

Pneumonia still exists, but with fewer cases than formerly and comparatively few deaths. The pneumonia epidemic came earlier in this camp than in most others.

Camp Wheeler is classified as a guard camp, but it is neither guard nor National Army in composition. Almost precisely half the men of the Thirty-First Division are from the guard, and half are draft men.

Fumigating rooms are being built in all the infirmaries: small, tight rooms, with wires for hanging blankets, etc. A mixture of 75 parts of solution of formaldehyd and 25 parts of crude phenol (carbolic acid) is used. The mixture is placed in a coal oil can, outside the chamber, and when heated, the gas is carried into the chamber through a rubber tube leading from the spout of the oil can. This scheme proves fairly satisfactory, in lieu of the steam sterilizers that are to be received later.

Capt. Arthur Pendleton, M. R. C., has been relieved from duty at the base hospital and ordered to duty with the division, as division alienist and neurologist. It is expected that he can still serve on the disability board at the base hospital.

The division medical school has had some excellent lectures by Captain Cupper of the British army and Lieutenant Renard of the French army.

BASE HOSPITAL NOTES

Twenty small lettered wards have been erected to take care of convalescent patients, and will, no doubt, be much more comfortable than the tents previously used for this purpose.

The wards were completed in the short space of three days, and will accommodate 400 patients, thus greatly relieving the congestion of the hospital.

The new building for the eye, ear and nose and throat department has been started, and will be ready for occupancy shortly, thus giving much needed room for the laboratory department.

The neuropsychiatric survey of the division has been completed, and 443 officers and enlisted men have been recommended for discharge for nervous or mental disability. A report of the survey was read at the officers' meeting, on the evening of January 18.

Contrary to the reports that seem to have found their way into the press, the recent storm did comparatively little damage at the base. The convalescent tents were blown down and much torn, but all patients and nearly all government property had been removed to other shelter before this happened. The commanding officer was in personal charge. No patient seemed to be made worse by the experience through which he had passed.

Eighty-First Division, Camp Jackson, Columbia, S. C.

JAN. 16, 1918.

INFECTIOUS DISEASES

Camp Jackson, like many other localities, has been visited by mumps, measles, pneumonia and meningitis.

In a few weeks after the buildings were up, there were transferred to the base hospital about 700 or 800 patients from the field hospital and various other organizations.

The measles were imported; the pneumonia was a sequela. The meningitis was immediately diagnosed and vigorous action taken to combat the disease. Specialists were sent from Washington to assist in the work and to enlarge the laboratory.

Major George Draper, the epidemiologist of New York, arrived, and by his council and advice helped to clear the situation. Lieut. Edward H. McLean, Lieut. Allen H. Bunce, and Lieut. George C. Brunelle were assigned to Captain Baeslack's staff to assist in the examination of the carriers. The laboratory staff consists of Capt. Frederick W. Baeslack, chief of the laboratory; Lieut. J. S. Flemming, Lieut. Alfred V. Salomon and Lieutenant Klugh.

The plan of the laboratory in handling the situation is to make cultures of the immediate contacts, as well as the entire organization, from which suspected cases are found and admitted to the hospital, making cultures of from 500 to 600 men per day. It is due to this thorough and expedient work that the situation is now well in hand. A carrier camp has also been established.

When we consider that about 2 per cent. of the men in the English army proved to be carriers and that the men in this cantonment came from the farms, untrained in sanitary methods and the care of their health, and when we consider that 10,000 workmen came into this camp every day, it is not surprising that a healthful site should be visited by contagious diseases; but the percentage of sickness and death is less, not greater, than in civil life.

A quarantine was placed on the whole camp. Public assemblage in the Y. M. C. A. theaters and other places was forbidden. The carriers were isolated, and spraying of noses began and continued for two weeks with antiseptics, dichloramin-T, eucalyptol, etc.

The general quarantine has been lifted, and only infected areas are closely quarantined at present. Cases are few; carriers are placed in the carrier camp.

The difficulty of getting workmen has delayed the completion of the heating plant, but now everything is in good working order.

PERSONAL

General McIver is commanding the Eighty-First Division, in the absence of Gen. Charles J. Bailey, who succeeded General French.——Major Henry Tucker received his commission, November 17.——Mrs. Henry Tucker and daughter are visiting Columbia.——Capt. Evan W. Meredith of Pittsburgh is acting chief of the surgical service.——Major Roberts, the internist of Atlanta, Ga., has rendered valuable aid in the medical service.——Colonel Vedder of Washington, D. C., paid a short visit to the camp.——Major Abbott, bacteriologist of Philadelphia, also visited the camp.——Dr. Welch, of Johns Hopkins, and Colonel Ashburne, recently in command of Fort Benjamin Harrison, visited the camp last week.——Lieut. George P. Pilling of Philadelphia has arrived at Camp Jackson, and has been assigned to assist in the genito-urinary work.——Captain McConnell, in addition to his work as chief of the nose and throat section, has been assigned as examiner for the Aviation Corps.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

JAN. 14, 1918.

ENLARGEMENT OF BASE HOSPITAL

Further enlargement of the base hospital and more barracks at Camp Zachary Taylor are contemplated at an estimated cost of $350,000. No official announcement of the contemplated enlargement of the cantonment has been made at the headquarters of the Lincoln Division, but news that such recommendations have been made to the War Department was obtained from an authoritative source at Washington, D. C. Authority has already been given military officials here to proceed with an extension of the Red Cross nurses' quarters at the hospital, and plans for the other buildings are under way. These include enlargement of the capacity of the hospital by 60 per cent. Accommodations for 700 more patients will be provided, barracks for the enlisted personnel of the hospital staff, quarters for medical officers, and enlargement of the heating plant. It is said that it will not be necessary for the government to procure more land for the proposed new structures, there being ample room on the site.

The enlargement of the base hospital does not indicate a present need, but the officers are preparing for the future. It is reasonable to suppose that when 17,000 more soldiers report here there will be an increase in sickness accordingly. The health of this command is considered excellent, the records in the Surgeon-General's Office showing it to be one of the healthiest of the cantonments.

Guide posts marking the recently named avenues and streets of the reservation have arrived and are being erected. The posts are 3 feet above ground and have cross arms bearing the name of the thoroughfares.

PERSONAL NOTES

Capt. John W. Price, Jr., Medical Department, has been released from his duties at Taylor base hospital and sent to the University of Pennsylvania for a course of special instruction. On completion of his course he will return to Camp Zachary Taylor.——Major Wilder of Chicago has been placed on the inactive list, and has left for his home. Major Wilder has been in charge of the eye board for examination of selected men at the camp.

ORDERS TO OFFICERS OF THE MEDICAL CORPS

To Camp Pike, Little Rock, Ark., for duty as commanding officer of the base hospital, Col. POWELL C. FAUNTLEROY.

To Fort McDowell, Calif., for duty, Major EUGENE L. SWIFT.

To Edgewood, Md., as camp surgeon in addition to his other duties at that place, Major GLENN L. JONES.

To Fort Sam Houston, Texas, as commanding officer of the base hospital, Lieut.-Col. EUGENE H. HARTNETT.

To Camp Fremont, Palo Alto, Calif., with the 8th division, Major CLARENCE R. BELL.

To Camp Fremont, Palo Alto, Calif., for duty, Lieut. FRANCKS M. TITTS.

Honorably discharged from the service, Major W. L. ROBINSON, Capt. JOHN H. KAY.

To Camp Beauregard, Alexandria, La., for consultation with the Division Surgeon, that camp, and on completion *to his proper station*, Lieut.-Col. ROBERT M. BLANCHARD.

To Camp Lee, Petersburg, Va., base hospital, Col. LOUIS T. HESS.

To Camp Beauregard, Alexandria, La., *Camp Sheridan*, Montgomery, Ala., *Camp McClellan*, Anniston, Ala., *Camp Shelby*, Hattiesburg, Miss., *Camp Wheeler*, Macon, Ga., to make special inspections, and on completion *to his proper station*, Lieut.-Col. FRANK W. WEED.

To Corpus Christie, Texas, to inspect certain buildings and sites and report to the Surgeon-General as to the desirability of establishing a convalescent camp at that place, and on completion *to his proper station*, Col. WILLIAM F. LEWIS.

To Hoboken, N. J., with the 52d Division, Major WILLIAM F. LORENZ, Capt. W. W. JOHNSTON, Lieuts. HENRY M. BLACKBURN, R. T. COOKSEY, WILLIAM C. LIEFERT, A. A. NITTEN, ORLANDO W. PICKARD, L. A. WOODLOCK.

To Philadelphia, Pa., New York City, in connection with the Gas Defense Service, and on completion *to his proper station*, General HENRY F. BIRMINGHAM, Capt. E. W. DUDLEY.

To Washington, D. C., in the Army Medical Museum, Major ROBERT W. SHUFELDT.

To Fort Riley, Kansas, for instruction, Lieut. GEORGE COOPER.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. THOMAS H. STEWART.

To New Haven, Conn., to inspect tuberculosis hospital, and on completion *to his proper station*, Col. GEORGE E. BUSHNELL.

Discharged from service on account of physical disability not in line of duty, Lieut. A. E. HARRISON.

To Camp Fremont, Palo Alto, Calif.; for duty, Major HERBERT H. SHARPE, Lieuts. CHARLES E. SIMS, WARREN STIRLING.

To Fort Riley, for instruction, Lieut. GEORGE H. COOPER.

To Washington, D. C., for instruction, and on completion *to San Juan*, Porto Rico, for duty in hospital, Major PHILIP B. CONNELLY.

To Camp Doniphan, Fort Sill, Okla., base hospital, in addition to his other duties, Col. FRANK H. KEEFER.

To Camp Dix, Wrightstown, N. J., to inspect the surgical equipment of the base hospital, and on completion *to his proper station*, Lieut.-Col. WILLIAM H. MENCRIEF.

To San Francisco, Calif., and on arrival at that place to report by telegraph to the Adjutant-General of the Army for further orders, Cols. WILLIAM B. BANISTER, BENJAMIN J. EDGAR, JR.

To Fort H. G. Wright, N. Y., and report in person to the commanding officer, for duty with Coast Defenses of Long Island, N. Y., Lieut. JOSEPH M. CANEY.

To Washington, D. C., for duty, Col. ALBERT E. TRUBY.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Dix, Lieut. MAXWELL MOODY, Tuscaloosa.

To Fort McPherson, Georgia, Hospital Unit "Q," Lieut. CLYDE W. DEAVER, Cleveland.

To Fort Oglethorpe, for instruction, Lieuts. ERNEST C. HOGOOD, Birmingham; HUGH W. HILL, Carrollton; JESSE F. BRYARS, Eliska; JAMES H. DAVIS, Jasper; ALLEN B. WHEELIS, Marion; WADE H. ESSLINGER, Meridianville; JAMES H. SENTELL, Milan; EDWARD DAY, Orville; BENJAMIN J. LEWIS, Samson; WILLIAM McM. BOGART, Stevenson; GEORGE W. HALL, Uniontown.

To Rockefeller Institute, New York, for instruction and on completion *to Roosevelt Hospital*, New York, for instruction and on completion *to his proper station*, from Camp McClellan, Capt. THOMAS M BARNETT, Dothan.

To his home and honorably discharged on account of being physically disqualified for active service, Lieut. WILBUR L. HEARD, Mt. Vernon.

Arkansas

To Camp Joseph E. Johnston, Jacksonville, Florida, Neuropsychiatric Board, from Washington, D. C., Capt. EDWIN P. BLEDSOE, Little Rock.

To Chicago, Ill., Presbyterian Hospital, for instruction, Lieut. NOLIE MUNCY, Little Rock.

To Fort Riley, for instruction, Capt. SHELBY B. HINKLE, Little Rock; Lieuts. HUGH C. BROOKS, Casa; ROBERT M. HUNTER, Clinton; EDGAR L. LINDSEY, Fort Smith; BOULANGER GWALTNEY, Haskell; CINCINNATUS H. M. MASON, Huffman; HUGH B. HENRY, Hulbert; FOSTER JARRELL, Huttig; NICHOLAS W. REIGLER, ALVIN W. STRAUSS, RAYMOND C. WOLFE, Little Rock; WILBUR R. HARWELL, Osceola; CLAUDE W. DRACE, Piggott; JAMES W. SLAUGHTER, Wesson; WOODYE A. WINTER, Wideners.

California

To Camp Fremont, Palo Alto, Calif., for duty, Capt. ROY A. BROWN Fresno; Lieut. JOHN N. BLOOD, McFarland. Base Hospital No. 47, Lieut JAMES K. HAMILTON, Jr., Alameda.

To Camp Greene, Charlotte, N. C., for duty, from Fort Myer, Lieut. GEORGE C. H. FRANKLIN, San Francisco.

To Camp Kearny, Linda Vista, Calif., base hospital, from Camp Kearny, Major RALPH L. BYRNES, Los Angeles. From duty as contract surgeon at Camp Kearny, Capt. LEWIS B. REMINGTON, Monrovia.

To Camp Pike, Little Rock, Ark., base hospital, from Camp Greene, Capt. GUSTAV J. BERGENER, San Francisco.

To Fort Riley, Hospital Train No. 37, from Fort Riley, Major HARRISON W. STUCKEY, San Francisco. For instruction, Lieut. WILLIAM R. THOMPSON, Los Angeles.

To Morrison, Va., for duty, from Fort Leavenworth, Capt. CHARLES E. BROWN, Fresno.

To San Diego, Calif., signal corps, aviation section, for duty, Lieuts. JOHN R. BUCKINGHAM, Big Pine; CHARLES S. BROOKS, El Centro.

To Washington, D. C., aviation section, signal corps, medical research board, from Fort MacArthur, Capt. JAMES L. WHITNEY, San Francisco.

To Western Department as tuberculosis examiners, from Camp Kearny, Lieuts. OSCAR O. YOUNG, Garden Grove; JOHN E. FAHY, Los Angeles.

To his home and honorably discharged on account of being physically disqualified for active service, Lieut. GEORGE H. SCIARONI, Sutter Creek.

Colorado

To Camp Greene, Charlotte, N. C., for duty, from Indianapolis, Lieut. WILLIAM W. JONES, Denver; from Takoma Park, D. C., Lieut. JOHN R. HALL, Ft. Logan.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Riley, Lieuts. CHARLES E. LOCKWOOD, Olathe; JAMES R. EARLE, Somerset.

To Chicago, Ill., Presbyterian Hospital, for instruction, Major EDWARD F. DEAN, Denver.

To Philadelphia, University of Pennsylvania, for instruction, from Camp Logan, Lieut. TOM R. KNOWLES, Colorado Springs.

To South San Antonio, Texas, Kelly Field, for duty, Lieut. WILLIAM E. DRISDALE, Silver Plume.

Honorably discharged, Lieut. CYRUS W. POLEY, Boulder.

Connecticut

To Boston, Mass., Harvard Medical School, for instruction in orthopedic work, from Camp Devens, Lieut. HAROLD L. BURR, Middletown.

To Fort Oglethorpe, for instruction, Capt. JOHN S. BLACKMER, Norwich; Lieuts. GRAHAM C. WELLMAN, East River; EDWARD A. BRACE, Ellington; THOMAS P. MURDOCK, Meriden; DANIEL A. NOLAN, Middletown; WALTER L. DOUGLASS, New London; CLARENCE G. BURLINGAME, South Manchester; ARTHUR S. GRANT, South Windsor; WILLIAM E. SMITH, Stamford; RICHARD J. EWTON, Terryville; EDWARD J. GODFREY, HENRY R. HUNGERFORD, Waterbury; FREDERICK J. MORRISON, Westport.

Delaware

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Pike, Lieut. JOHN R. ELLIOTT, Laurel.

To Fort Oglethorpe, for instruction, Lieut. RICHARD R. TYBOUT, New Castle.

District of Columbia

To Camp Meade, Annapolis Junction, Md., for inspection and on completion *to his proper station*, Capt. HARRY H. KERR, Washington.

To Hoboken, N. J., for duty, Lieut. GEORGE W. McKENZIE, Washington.

To Army Medical School, Takoma Park, D. C., as instructor in ophthalmology, from Walter Reed General Hospital, Capt. WILLIAM H. HUNTINGTON, Washington.

Florida

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Major JOHN E. BOYD, Jacksonville.

To Fort Oglethorpe, for instruction, Lieuts. GROVER C. FRANKLIN, Larkins; JAMES H. BICKERSTAFF, Pensacola; ROBERT D. FERGUSON, Reddick; JOSEPH W. TAYLOR, Tampa.

To his home and honorably discharged on account of being physically disqualified for active service, Lieut. CLIFFORD M. MITCHELL, Welaka.

Georgia

To Camp MacArthur, Waco, Texas, base hospital, Lieut. EDWIN L. LAWSON, Sylvester.

To Camp Meade, Annapolis Junction, Md., for duty, from Army Medical School, Lieut. JAMES J. MARTIN, Atlanta.

To Fort Oglethorpe, for instruction, Capts. WILLIAM C. HUMPHRIES, Acworth; FRED L. WEBB, Macon; Lieuts. JAMES L. BLAIR, SAMUEL L. MORRIS, Atlanta; ALVAH W. WHITE, Box Springs; JOHN C. TURNER, Jr., Camilla; DAVID H. PARLIAMENT, Covington; STEWART McBRYDE, Darien; MILTON WALTON, Lumpkin; EARL E. PATE, Macon; WILLIAM F. JENKINS, Midland; GEORGE B. SMITH, Rome; ALTON B. REDDICK, Sylvania; WALTER K. STEWART, Sylvester; SEARLE B. GILLESPIE, Willacoochee. *Evacuation, Hospital No. 4*, from Fort Oglethorpe, Lieut.

EARL T. NEWSOM, Camilla. *Hospital Train No. 36,* from Fort Oglethorpe, Lieut. ALBERT F. BRAWNER, Atlanta.

To San Francisco, Calif., for duty, from Presidio, Lieut. JAMES C. PHILLIPS, Lithonia.

To his home and honorably discharged on account of being physically disqualified for active service, Lieut. JAMES K. McCLINTIC, Monroe.

Hawaii

To Fort Sill, Okla., to be assigned permanently with that regiment, Capt. WILLIAM E. KRAMER, Schofield Barracks.

To Honolulu, Hawaii, for duty, Capt. YOUNG E. COLVILLE, Hawaii.

Idaho

To Fort Riley, for instruction, Capt. WILLIAM H. TUKEY, Boise.

Illinois

To Army Medical School, Washington, D. C., for preparation for nutritional survey, from Fort Oglethorpe, Lieut. THOMAS A. WAYLAND, Dallas City.

To Camp Beauregard, Alexandria, La., to examine the command in his specialty, from Ann Arbor, Lieut. WALTER C. COOK, Peoria.

To Camp Dix, Wrightstown, N. J., to inspect the surgical equipment at the base hospital and on completion *to his proper station,* Major ALLEN B. KANAVEL, Chicago.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieuts. BION C. SYVORSEN, Chicago; HOWARD T. KNIGHT, Elgin.

To Camp Greene, Charlotte, N. C., for duty, from Fort Riley, Lieut. PERCY J. CARROLL, East St. Louis.

To Camp Lewis, American Lake, Wash., base hospital, from Camp Lewis, Lieut. FRANKLIN A. MARTIN, Tower Hill.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. CHARLES K. STULIK, Chicago.

To Camp Meigs, Washington, D. C., for duty, from Army Medical School, Lieut. JOHN HRABIK, Murphysboro.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Grant, Capt. EMIL WINDMUELLER, Woodstock.

To Camp Taylor, Louisville, Ky., base hospital, from duty as a private at Camp Grant, Lieut. RALPH C. SULLIVAN, Chicago.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Lee, Capt. ORA M. WILLIAMSON, Sullivan.

To Chicago, Ill., as assistant recruiting officer and on completion *to Fort Riley* for instruction, Lieut. LEONARD F. ROBLES, Chicago. Presbyterian Hospital for instruction, Lieut. ROBERT E. SMITH, Springfield.

To Fort Oglethorpe, as instructor, from Camp Pike, Major MAURICE L. GOODKIND, Chicago. For duty, from Camp Sherman, Major JAMES A. HARVEY, Chicago. For instruction, Lieut. HAROLD A. PECKMAN, Chicago; from Naperville, Lieut. WALTER S. CONN, Naperville.

To Fort Riley to organize and command Hospital Train No. 35, from Fort Riley, Major JESSE T. McDAVID, Decatur. For instruction, from Ann Arbor, Capt. CARL G. RYDIN, Chicago. As a member of a board of medical officers to examine the command for mental and nervous diseases, from Camp Dodge, Capt. DAVID H. KELLER, Anna; from New York City, Capt. WILLIAM W. EICHELBERGER, Rockford; from Ann Arbor, Lieut. JAMES K. POLLOCK, Elgin. For instruction, Lieuts. RAYMOND E. DAVIES, Bement; JAMES ETERNO, CHARLES M. FOX, JOHN J. GEARIN, BRONISLAUS J. NIX, Chicago; DANIEL D. RABER, Gridley; JOHN H. FRANKLIN, Spring Valley.

To Indianapolis, Ind., Aviation Section, Signal Corps, for duty, from Camp Sherman, Capt. ORVEL A. SUTTLE, Mt. Vernon.

To Morrison, Va., for duty, Lieut. CLARENCE C. RENO, Chicago.

To Peoria, Ill., for duty, from Fort Sheridan, Lieut. ARTHUR C. GILLAM, Chicago.

To Philadelphia, University of Pennsylvania, for instruction, from Camp Sherman, Lieut. ROBERT A. NOBLE, Bloomington.

To Rockefeller Institute, New York City, for instruction and on completion *to his proper station,* from Camp Dodge, Lieut. JOHN HIGGINSON, Chicago.

To San Antonio, Texas, Kelly Field, to examine the command for nervous and mental diseases, from Philadelphia, Capt. ROMNEY M. Ritchey, Elgin.

To San Francisco, Calif., for duty, from Presidio, Capts. LEWIS M. FIELD, Brownfield; JOHN O. GASTON, Park Ridge; Lieuts. PAUL G. CAPPS, Herrin; ELZA F. TATE, Homer; GEORGE A. TAMKERSLEY, Owaneco; WILLIAM D. CHAPMAN, Silvis; FRANK B. IRELAND, Washburn.

To Washington, D. C., for duty in the Surgeon-General's Office, from Fort Oglethorpe, Major JOHN A. HORNSBY, Chicago.

To their homes and honorably discharged on account of being physically disqualified for active service, Lieuts. WALTER D. HALL, Chicago; ANDREW J. BUTNER, Harrisburg.

Honorably discharged, Lieut. GEORGE A. McDONALD, Goldengate.

Indiana

To Camp Greene, Charlotte, N. C., for duty, from Camp Greene, Lieut. BROWN S. McCLINTIC, Peru; from Camp Wheeler, Lieut. JAMES W. DUCKWORTH, Indianapolis.

To Camp Travis, Fort Sam Houston, Texas, for duty in orthopedic work, from Oklahoma City, Lieut. REAVILL M. WALDEN, Evansville.

To Fort Oglethorpe, for instruction, Lieuts. CARL E. ABELL, Evansville; WALTER D. MARTIN, Kramer.

To Fort Riley, for instruction, Lieuts. ALFRED A. HADLEY, Jasonville; MARTIN E. HARRELL, Kokomo; MERRILL S. DAVIS, Marion.

To Morrison, Va., for duty, Lieut. WALTER F. VANDAMENT, Kennard.

To Rockefeller Institute, New York City, for instruction and on completion *to Bellevue Hospital,* New York City, for instruction and on completion *to his proper station,* from Walter Reed General Hospital, Lieut. ARVINE E. MOZINGO, Tipton.

To San Francisco, Calif., for duty, from Presidio, Lieuts. HOMER H. TALLMAN, Culver; THOMAS B. JOHNSON, Jamestown; HENRY H. REEDER, Jeffersonville; IRVING A. WHITLATCH, Milan; HARVEY S. COOK, Worthington.

To Vancouver Barracks, Washington, for duty, from Presidio, Capt. FREDERICK L. DARROW, East Haven.

To their homes and honorably discharged on account of being physically disqualified for active service, Major FRANCIS M. WALL, Warren; Capt. ZERA M. BEAMAN, North Manchester.

Iowa

To Camp Beauregard, Alexandria, La., to examine the command in his specialty, from Philadelphia, Lieut. FISHER B. E. MILLER, Cherokee.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. FREDERICK L. WAHRER, Fort Madison.

To Chicago, Ill., Presbyterian Hospital, for instruction, Capt. EVARTS A. GRAHAM, Mason City.

To Fort Leavenworth, Kan., for duty, Lieut. EARL C. REYNOLDS, Greenfield.

To Fort Myer, Va., for duty, from Fort Myer, Capt. STEPHEN A. O'BRIEN, Mason City.

To Fort Riley for instruction, Capts. WILLIAM L. HEARST, Cedar Falls; CHARLES B. TAYLOR, What Cheer; Lieut. BEN TALLMAN WHITAKER, Boone; HERBERT H. GALLATIN, Fort Madison; THEODORE A. WILLIS, Iowa City; LEOMAN D. HUFF, Lenox.

To his home and honorably discharged, Lieut. WALTER A. SMITH, Donnellson.

Kansas

To Army Medical School, Washington, D. C., for duty, Lieut. DONALD R. BLACK, Rosedale.

To Camp Cody, Deming, N. Mex., for duty in orthopedic work, from Oklahoma City, Lieut. MARION TRUEHART, Sterling.

To Fort Logan H. Roots, Ark., for temporary duty, from Fort Riley, Lieut. WILLIFRED PAGE, McCracken.

To Fort McPherson, Ga., for duty, from Fort Riley, Capt. ROSCOE T. NICHOLS, Liberal; Lieut. CHARLES J. CAHILL, Topeka.

To Fort Riley, for instruction, Capt. FREDERICK E. KRAFT, National Military Home; Lieuts. GEORGE W. D. BEVERLY, Alma; BERTICE A. ISENBERG, Alton; WILLIAM E. ORR, Arena; THOMAS E. HORNER, Atchison; LEWIS M. GORE, Calva; DANIEL A. HOLLAND, Cambridge; WILLIAM G. OUSE, Centralia; E. L. BOLTON, Chilton; GEORGE E. BRETHOUR, Dwight; ALONZO R. ADAMS, Easton; GUY H. WINSLOW, Grainfield; HARR J. HARKER, Horton; CYRIL E. SHEPARD, Larned; EDWARD A. MARRS, Moline; JOHN O. DINGUS, Mound City; WILLIAM S. FLEMING, Ness City; ROBERT G. KEGER, Norwich; CHARLES B. STEPHENS, Ottawa; ORVILLE O. MOORE, LEROY S. S. OTT, Topeka. Evacuation Hospital No. 7, from Fort Riley, Lieut. CLAUDE F. HAYES, Arlington. Hospital Train No. 37, from Fort Riley, Lieut. FREEMAN BRUBAKER, McPherson.

To Morrison, Va., for duty, from Fort Leavenworth, Lieut. FLETCHER B. TAYLOR, Leavenworth.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Camp Doniphan, Lieut. ARTHUR B. OECHSLI, Stockton.

To San Antonio, Texas, Kelly Field, to examine the command for nervous and mental diseases, from Camp Bowie, Lieut. GEORGE E. HESNER, Topeka.

To his home and honorably discharged on account of being physically disqualified for active service, Lieut. HARRY H. HUDSON, Newton.

Kentucky

To Camp Jackson, Columbia, S. C., base hospital, from Fort Riley, Lieut. NOTLEY C. WITT, Franklin.

To Camp Meade, Annapolis Junction, Md., to conduct examinations in his specialty, Lieut. THOMAS F. MILLER, Glasgow.

To Camp Zone, Panama Canal, for duty, from Bowling Green, Major ARTHUR T. McCORMACK, Bowling Green.

To Chicago, Ill., Presbyterian Hospital, for instruction, Capt. EDWIN T. BRUCE, Louisville; Lieut. CHARLES E. VIDT, Russell.

To Fort Oglethorpe for instruction, from Camp Taylor, Major PHILIP H. STEWART, Paducah; from New York City, Capt. DALFERRAS P. CURRY, Jr., Bowling Green. For instruction, Capts. HUGH E. PRATHER, Hickman; GEORGE P. BEUTEL, Jr., JOSEPH G. SHERRILL, Louisville; Lieuts. HENRY A. HUGHES, Bond; JOE C. BUSSEY, Busseyville; WILL L. CALVERT, Carrollton; Leslie S. HAYES, Charley; JAMES M. MORRIS, Chestnutburg; WILLIAM F. PEEBLES, Clinton; HENRY SMITH, Cromwell; EARLE E. SMITH, Fristoe; CARL C. HOWARD, Glasgow; PRATHER B. CURLIN, Hickman; JOHN F. HAHS, LaCenter; JACKSON E. MILLION, Lexington; FRANCIS G. AUD, JACOB P. SHACKLETT, Louisville; JOHN G. SIDDENS, Lucas; DRUE McB. PURDOM, Lyndon; JAMES G. BENTLEY, Manchester; ELMORE B. BACKSMAN, Newport; CHARLES G. MORRIS, Paducah; OLDRON A. MITCHELL, Raywick; JOHN A. SNOWDEN, Right Angle; SAMUEL W. BATES, Shepherdsville; LEE ROSE, Wefford; LORENZO G. SMITH, Williamsburg.

To San Francisco, Calif., for duty, from Presidio, Lieuts. UREY G. DAVIS, Hopkinsville; HUGH F. TAYLOR, Mintonville.

To his home and honorably discharged on account of being physically disqualified for active service, Lieut. PATTIE A. MOORE, Wingo.

To his home and the inactive list, Lieut. HARRY F. MANN, DeMossville.

Louisiana

To Fort Oglethorpe for instruction, Lieuts. MILTON W. TALBOT, Brenice; JOHN C. CHAPMAN, Colfax; WALTER C. MIDDLETON, Cravens; WILLIAM P. BUCK, Ja., Evergreen; MATTHIAS N. COLLINS, Houston; CHARLES W. PHILLIPS, Lenzburg; WILLIAM McL. HAYES, Louisiana; GEORGE W. WRIGHT, Monroe; MONTE F. MEYER, New Orleans; JOSEPH F. CASAYAUX, New Roads; PHILIP H. NEVITT, Plain Dealing; ISIDORE B. ROUGAN, Shreveport.

To Philadelphia, University of Pennsylvania, for instruction, from Camp Shelby, Capt. KARL W. NEY, New Orleans.

To Rockefeller Institute, New York, for instruction and on completion *to Bellevue Hospital*, New York, for instruction and on completion *to his proper station*, from Camp Sevier, Lieut. THADDEUS I. ST. MARTIN, Houma.

To San Antonio, Texas, Kelly Field, to examine for nervous and mental diseases, from Camp Sheridan, Major ROY McL. VAN WART, New Orleans.

Maine

To Camp Meigs, Washington, D. C., for duty, from Fort Slocum, Lieut. CHARLES E. COOK, Ja., South Berwick.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Sherman, Major WARREN E. KESCHNER, Bath.

To Fort Oglethorpe, for instruction, Capt. HAROLD R. CRANE, Bangor; Lieuts. SETH S. MULLIN, Bath; PERCIVAL C. HOPKINS, Bingham; HAROLD F. ATWOOD, Buckfield; JOSEPH J. E. J. PELLETIER, HAROLD E. E. STEVENS, Lewiston; HENRY E. MARSTON, North Anson; ARTHUR W. WINCH, Portland; CHARLES W. KINGHORN, Searsmont.

Maryland

To Camp Greene, Charlotte, N. C., for duty, from Camp Hancock, Lieut. PATRICK F. McGUIRE, Baltimore.

To Camp Meigs, Washington, D. C., for duty, Lieut. RALPH S. STAUFFER, Hagerstown; from Camp Meigs, Lieut. IRA C. TYNDALL, Berlin.

To Camp Sevier, Greenville, S. C., for duty, from Fort Barrancas, Lieut. RICHARD E. YELLOTT, Fallston.

To Camp Wheeler, Macon, Ga., for duty, from Washington, D. C., Lieut. EDWARD S. BEASLEY, Baltimore.

To Fort Oglethorpe, for duty, from Evacuation Hospital No. 4, Fort Oglethorpe, Capt. EDWARD E. LAMKIN, Vienna. For instruction, Lieuts. ALEXANDER M. EVANS, HUGH C. F. GILL, GEORGE E. PEIRCE, Baltimore; IRA BURNS, Havre de Grace; FRANCIS H. JAMESON, Newport; HENRY A. NAYLOR, Pikesville; FREDERICK N. HENDERSON, Rockville.

To Rockefeller Institute, New York, for instruction, and on completion *to Hoboken, N. J.*, for temporary duty, from Fort Riley, Major DON P. PETERS, Baltimore. For instruction and on completion *to Bellevue Hospital*, New York City, for instruction and on completion *to his proper station*, from Camp Sheridan, Lieut. EUGENE H. HAYWARD, Baltimore.

To his home and the inactive list, Major CLEMENT A. PENROSE, Baltimore.

To his home and honorably discharged on account of being physically disqualified for active service, Lieut. JOHN G. ALEXANDER, Baltimore.

Massachusetts

To Boston, Mass., for duty, Capt. BEN H. METCALF, Winthrop.

To Camp Beauregard, Alexandria, La., to examine the command in his specialty, from Boston, Lieut. FRANCIS S. CALDICOTT, Milford.

To Camp Greene, Charlotte, N. C., for duty, from Camp Pike, Lieut. NORMAN McL. SCOTT, Boston.

To Camp Sevier, Greenville, S. C., for duty, Capts. WILLIAM C. SHEEHY, FRANK E. STETSON, New Bedford.

To Camp Shelby, Hattiesburg, Miss., for the special examination of the command for tuberculosis, from Camp Gordon, Capt. FRANCIS E. BURKE, Quincy.

To Fort Oglethorpe, for duty, from Fort Oglethorpe, Capt. ISAAC S. F. DODD, Pittsfield. For instruction, Capt. CORNELIUS J. DACCY, Brockton; from Army Medical School, Capt. WILLIAM M. GAY, Sharon. For instruction, Lieuts. PERCY A. SHURTLEFF, Blandford; JOHN F. MARTIN, Boston; PEIRCE H. LEAVITT, ALFRED M. LEMAY, Brockton; WILLIAM S. MORRISS, LUTHER J. SHEPLEY, Fall River; GEORGE C. BLONDI, Framingham; JOSEPH J. COSGROVE, Hopkinton; THOMAS F. TIERNEY, Hudson; CLARENCE W. SEWALL, Jamaica Plain; ANDREW P. SHEA, Lawrence; FREDERICK C. SHULTIS, Leominster; HARRY G. SUMNER, Lowell; HENRY A. ROBINSON, Marlboro; ROBERT C. SELLEW, Mill River; ARTHUR L. BRUNELLE, RAYMOND E. SENECAL, New Bedford; JOHN G. SWEENEY, North Cohassett; ROBERT S. FLETCHER, Oxford; NATHANIEL M. COHEN, Roxbury; ELMER E. LIGHT, Springfield; CHARLES MOLINE, Sunderland; CHARLES W. DeWOLF, Tewksbury; BERNARD E. PLOUFFE, Webster; FRANK T. OBERG, Worcester.

To New York City, Cornell Medical College, for instruction in military roentgenology, Capt. JOHN H. LAMBERT, Lowell. Neurological Institute, for intensive training in their specialty, Lieuts. BUELL L. ASHMORE, HARVEY M. WATKINS, Palmer.

To San Francisco, Calif., for duty, from Presidio, Lieut. WILLIAM H. BLANCHETTE, Fall River.

Michigan

To Camp Grant, Rockford Ill., for duty, from Peoria, Lieut. EDWARD P. WAID, Salem.

To Camp Greene, Charlotte, N. C., base hospital, from Fort Oglethorpe, Lieut. ALBERT S. BASS, Greenville. For duty, from Camp Greene, Lieut. ROBERT A. HALE, Ann Arbor; from Fort Omaha, Lieut. WAYNE R. BEARDSLEY, Jones.

To Camp Taylor, Louisville, Ky., as a member of aviation section, signal corps, in addition to his other duties, Capt. CHARLES BARTON, Detroit.

To Fort Riley, as president of a board of medical officers to examine the command for mental and nervous diseases, from Ann Arbor, Major FREDERICK H. NEWBERRY, Detroit. For instruction, Major SAMUEL E. CRUSE, from Mountain; Lieuts. ROBERT P. STARK, Allegan; RICHARD C. LYLE, Bridgeport; CLAYTON A. WHITE, Burnips.

To Philadelphia, University of Pennsylvania, for instruction, from Camp Dodge, Lieut. GROVER C. PEMBERTHY, Detroit.

To San Antonio, Texas, Kelly Field, to examine the command for nervous and mental diseases, from New York City, Lieut. NICHOLSON W. PINTO, Kalamazoo.

To San Francisco, Calif., for duty, from Presidio, Lieuts. BENJAMIN T. GOODFELLOW, Clio; JAMES W. HAWKINS, Detroit; IRA J. STONER, Jonesville; THEODORE S. CROSBY, Wakefield.

To his home and honorably discharged, Capt. WILLIAM C. McCUTCHEON, Cassopolis.

Honorably discharged on account of being physically disqualified for active service, Lieut. FRANK W. STAFFORD, Detroit.

Minnesota

To Camp Beauregard, Alexandria, La., to examine the command in his specialty, from Philadelphia, Lieut. EDWARD J. ENGBERG, St. Paul.

To Camp Sheridan, Montgomery, Ala., base hospital, from Rockefeller Institute, Lieut. WALTER E. CREMPLER, Minneapolis.

To Fort Oglethorpe, for duty, from Fort Oglethorpe, Lieut. ADOLPH M. HANSON, Faribault.

To Fort Riley, for duty, Lieut. JOSEPH C. MICHAEL, St. Paul. For instruction, Lieuts. MERRITT W. WHEELER, Glenco; THOMAS F. McCORMICK, Minneapolis.

To Minneapolis, Minn., Aviation Section, Signal Corps, for duty, Lieut. GEORGE P. DEMPSEY, Shakepee.

To New York City for instruction and on completion *to Bellevue Hospital* for instruction and on completion *to his proper station*, from Fort Oglethorpe, Lieut. FRANK L. JENNINGS, Hopkins

To Washington, D. C., for duty in the Surgeon-General's Office, Major CHARLES H. MAYO, Rochester.

Mississippi

To Camp Beauregard, Alexandria, La., to examine the command in his specialty, from Philadelphia, Lieut. THOMAS G. CLEVELAND, Meridian.

To Rockefeller Institute, New York, for instruction and on completion *to Bellevue Hospital* for instruction and on completion *to his proper station*, from Camp Shelby, Major WALTER W. CRAWFORD, Hattiesburg. For instruction and on completion *to New York City* for instruction and on completion *to his proper station*, from Camp Wadsworth, Lieut. PAUL Z. BROWNE, Grenada.

To San Antonio, Texas, Kelly Field, for duty, Lieut. ROBERT A. STRONG, Pass Christian.

Honorably discharged on account of being physically disqualified for active service, Lieut. CANNING T. BELL, Dekalb.

Missouri

To Camp Dodge, Des Moines, Iowa, for duty, from Brooklyn, Lieut. HUGH E. ROGERS, St. Louis.

To Camp Doniphan, Fort Sill, Okla., for duty, Capt. WINFRED A. POST, Carthage.

To Camp Greene, Charlotte, N. C., for duty, from Camp Dodge, Lieut. LEWIS E. J. BROWNE, Lewistown.

To Camp Kearny, Linda Vista, Calif., for duty, from Presidio, Major MAZYCK P. RAVENEL, Columbia.

To Camp Merritt, Tenafly, N. J., to assist in a nutritional survey of that camp and on completion *to his proper station*, Capt. DON R. JOSEPH, St. Louis.

To Camp Shelby, Hattiesburg, Miss., for the special examination of the command for tuberculosis, from Camp Gordon, Lieut. WILLIAM J. DAVIS, St. Louis.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Custer, Lieut. ROY A. McGARRY, St. Louis.

To Columbia, Mo., to complete the examination of men for enlistment and on completion *to the inactive list* of the Medical Reserve Corps, Lieut. OSCAR F. BRADFORD, Columbia.

To Fort Oglethorpe, for instruction, Lieut. HARVEY W. JOHNSON, Wytopitlock.

To Fort Omaha, Neb., for duty, Lieut. AMOS T. FISHER, Kansas City.

To Fort Riley, for instruction, Capts. WILLIAM J. LYNN, Kansas City; JOSEPH B. UNSELL, Louisiana; CHARLES A. SMITH, Osceola; FRANCIS M. VESSELLA, Perryville; MORVELL W. SHARPE, St. Louis; Lieuts. CARL C. JANUARY, Centerville; LEWIS H. LONG, Denver; ROY C. SAMPLE, Fredericktown; WILLIAM B. McCLURE, Hale; GEORGE E. LOCKER, Iantha; WALTER F. HOLBROOK, JAMES W. OUSLEY, CLAUDE C. TUCKER, Kansas City; LOGAN L. LATHAM, Lathan; PAUL C. DAVIS, Madison; JOHN W. WILLIAMS, Nashville; URSA C. WESTON, Osgood; LOUIS B. KNECHT, Poplar Bluff; SCOTT COOK, Qulin; PAUL S. MABRY, Rockaport; HARRY L. SMITH, St. Joseph; JOHN A. FLURY, ANDREW J. GETTINGER, ALBERT J. GRIOT, JAMES W. HUFFMAN, BERNHARDT W. KLIPPEL, St. Louis; SAMUEL

W. HOLT, Steelesville; WALTER E. WEST, Trenton; HARRY E. PARKER, Warrensburg; LEWIS C. CALVERT, Weston.

To San Antonio, Texas, Kelly Field, to examine for nervous and mental diseases, from Philadelphia, Capt. WILLIAM A. EDLER, St. Louis.

To San Francisco, Calif., for duty, from Presidio, Lieut. EUGENE HALL, St. Joseph.

To his home and honorably discharged on account of being physically disqualified for active service, Lieut. ROY C. DRIPPS, St. Louis.

Montana

To Chicago, Ill., Presbyterian Hospital, for instruction, Lieut. ALEXANDER M. MACAULEY, Great Falls.

To Fort Riley for instruction, Lieuts. HAROLD SCHWARTZ, Butte; ARTHUR A. HUSSER, Hingham; JOHN W. OLSON, Troy.

Nebraska

To Camp Dodge, Des Moines, Iowa, base hospital, from Camp Dodge, Lieut. DANIEL FRANKLIN, Omaha.

To Camp Meade, Annapolis Junction, Md., for duty, from Army Medical School, Capt. HARRY M. BONNIWELL, Lincoln.

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Riley, Lieut. WILLIAM J. McCRAUN, Omaha.

To Fort Monroe, Va., for duty, from Camp Custer, Capt. DANIEL B. STIDWORTHY, Homer.

To Fort Oglethorpe, Hospital Train No. 36, from Fort Oglethorpe, Lieut. VERNON V. TALCOTT, Omaha.

To Fort Riley, for instruction, Capts. JOHN R. BEATTY, Butte; HENRY R. MINER, Falls City; from Omaha, Capt. JOHN B. POTTS, Omaha; Hospital Train No. 35, from Fort Riley, Capt. GEORGE R. GILBERT, Omaha; Lieut. CARL A. MEYER, Newman Grove. For duty, from Fort Riley, Lieut. WILLIAM C. AKERS, Omaha.

To Fort Thomas, Ky., for duty, from Army Medical School, Capt. WILLIAM W. DeWOLFE, Bennett.

To Morrison, Va., for duty, from Fort Leavenworth, Capt. ELLIS H. WHITEHEAD, Osmond.

To Omaha, Neb., Aviation Section, Signal Corps, for duty, Lieut. SAM D. COWAN, Falls City.

Nevada

To Fort Riley, for instruction, Capt. CLAUDIUS W. WEST, Elko.

New Hampshire

To Fort Oglethorpe, Evacuation Hospital No. 4, for duty, from Fort Oglethorpe, Capt. ERNEST L. BELL, Plymouth.

New Jersey

To Camp Greene, Charlotte, N. C., base hospital, from Fort Oglethorpe, Lieut. ERNEST S. RAMSDELL, Camden.

To Camp Meigs, Washington, D. C., Repair Shop Unit 303, Lieut. HERMAN MALADAUF, Ja., Trenton.

To Fort Oglethorpe, for duty, from Evacuation Hospital No. 4, Lieut. GEORGE W. VANNATTA, Orange. For instruction, Lieuts. ARTHUR LaROE, North Amboy; BROOKE DODSON, Pennsgrove.

To Fort Riley, Evacuation Hospital No. 11, for duty, from Fort Riley, Lieut. LeROY L. COLSH, Maplewood.

To Fort Williams, Maine, for the special examination of the command for tuberculosis, and on completion *to Fort Constitution, N. H.,* for the same duty, and on completion *to Fort Warren* for the same duty, and on completion of these duties to report to the Adjutant-General and Surgeon-General of the Army for further orders, from Camp Devens, Lieut. SAMUEL R. FAIRCHILD, Penns Grove.

To Philadelphia, University of Pennsylvania, for intensive instruction in brain surgery, from Camp Dix, Capt. ANDREW F. McBRIDE, Paterson.

To Rockefeller Institute, New York City, for instruction, and on completion *to New York City* for instruction, and on completion *to his proper station,* from Camp Dix, Lieut. FILBERT R. CORSON, Atlantic City.

To San Francisco, Calif., for duty, from Presidio, Lieut. STEPHEN CAMPBELL, WOODBURY.

To Washington, D. C., Aviation Section, Signal Corps, for duty, Capt. ELBERT S. SHERMAN, Newark.

To his home and honorably discharged on account of being physically disqualified for active service, Lieut. GEORGE W. VANNATTA, East Orange.

Honorably discharged, Lieut. MORRIS R. FAULKNER, Vineland.

New Mexico

To Camp MacArthur, Waco, Texas, for duty, Capt. GEORGE D. CARTER, Mesilla Park.

To his home and honorably discharged, Lieut. ORIN J. WHITCOMB, Raton.

New York

To Albany, for duty, Capt. WILLIAM P. FAUST, Schenectady.

To Army Medical School, Washington, D. C., for instruction, Lieut. LAWRENCE D. REDWAY, New York City. For preparation for nutritional survey, Lieuts. ALLEN G. T. HIPPS, Brooklyn; ROY W. BURY, Philadelphia.

To Boston, Massachusetts General Hospital, for instruction and on completion *to Fort McHenry, Md.,* for duty, from Fort Oglethorpe, Lieut. WILLIAM M. ENNIS, Brooklyn.

To Camp Beauregard, Alexandria, La., to examine the command in his specialty, Capt. JOSEPH W. MOORE, Beacon; from New York City, Capt. EDWIN G. ZABRISKIE, New York City.

To Camp Custer, Battle Creek, Mich., base hospital, from Walter Reed General Hospital, Capt. CALVIN M. KESSLER, New York City.

To Camp Greene, Charlotte, N. C., for duty, from Camp Devens, Lieut. LEON H. CORNWALL, New York City; from Fort Oglethorpe, Lieut. LOUIS DeK. BELDEN, New York City; from Williamsburg, N. Y., Lieut. LOUIS F. BOYD, New York City.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, Lieut. HAL McC. DAVISON, New York City; for duty, from Camp Wheeler, Lieut. GEORGE S. SKIFF, Gainesville.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. WALTER G. HAYWARD, Jamestown; EDMUND L. DOUGLAS, NATHAN C. SCHIFF, New York City.

To Camp Meade, Annapolis Junction, Md., as Division Psychiatrist from Camp Meade, Capt. MORTIMER W. RAYNOR, New York City; for duty, Capt. DANIEL M. WYNKOOP, Babylon; to conduct examinations in his specialty, Capt. CHARLES G. O'CONNOR, Brooklyn.

To Camp Shelby, Hattiesburg, Miss., for the special examination of the command for tuberculosis, from Camp Gordon, Lieut. JAMES W. PRICE, Saranac Lake.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Washington, D. C., Capt. FRED M. MEADER, New York City.

To Camp Upton, L. I., N. Y., as a member of Aviation Section, Signal Corps, in addition to his other duties at that camp, Capt. OWEN R. O'NEILL, New York City; for duty, from Camp Upton, Lieuts. RALPH E. BRODIE, Albion; BURNETT B. BENSON, New York City.

To Canal Zone, for duty, from Fort McPherson, Capt. WILLIAM L. McFARLAND, New York City.

To Fort Bayard, N. M., for duty, Lieut. ISIDOR KRAUSE, Williamsbridge.

To Fort Monroe, Va., for duty, Lieut. BENJAMIN BRODIE, New York City.

To Fort Oglethorpe, Evacuation Hospital No. 4, for duty from Fort Oglethorpe, Capt. JOHN R. BRADLEY, Rochester. For instruction, Capt. JAMES H. McCORT, Sag Harbor; from New York City, Capt. JOHN J. COTTER, New York City. For instruction, Lieuts. HENRY M. SPEFFORD, Batavia; FRANK TANNENBAUM, Bronx; ARCHIBALD A. WALKER, SAMUEL E. WITT, Brooklyn; FLOYD P. BREESE, Elmira; WILLIAM L. MUNSON, Granville; ROBERT S. HAMILTON, THEODORE M. SANDERS, ALLAN E. VAN NESS, New York City; from Army Medical School, Lieut. FELIX GRABOFF, New York City; from Fort Ontario, Lieut. LYMAN J. SPALDING, New York City; from New York City, Lieut. VINCENT W. WEISS, New York City.

To Fort Riley, Evacuation Hospital No. 21, for duty, from Fort Riley, Lieut. EARL C. BOORDY, Amsterdam; from Philadelphia, Lieut. THOMAS H. RAINES, East View.

To Fort Rodman, Mass., for the special examination of the command for tuberculosis, and on completion *to Fort Adams, R. I.,* for the same duty, and on completion *to Fort H. G. Wright, L. I., N. Y.,* for the same duty, and on completion of these duties *to report by telegraph to the Adjutant-General and Surgeon-General of the Army* for further orders, from Camp Devens, Capt. BRUNO S. HOROWICZ, New York City; Lieut. ADELBERT C. ABBOTT, Syracuse.

To Fort Williams, Me., for the special examination of the command for tuberculosis, and on completion *to Fort Constitution, N. H.,* for the same duty, and on completion *to Fort Warren,* for the same duty, and on completion of these duties to report to the *Adjutant-General and Surgeon-General of the Army* for further orders, from Camp Devens, Lieuts. HERMAN JUDKOWITZ, New York City; CLYDE D. OATMAN, Poolville.

To Hoboken, N. J., for duty, from Fort Jay, Lieut. LOUIS J. LADINSKI, New York City.

To Milwaukee, Wis., for duty, from New York City, Lieut. HARRY R. FOERSTER, New York City.

To Morrison, Va., for duty, Lieut. ALBERT A. GETMAN, Syracuse.

To New York City, Cornell Medical College, for instruction in military roentgenology, Capt. MILES W. JOHNS, Utica. To report by telegraph *to the Adjutant-General and Surgeon-General of the Army* for further orders, from Panama Department, Lieut. RAY S. NELSON, New York City.

To Philadelphia Pa., University of Pennsylvania, for instruction, from Camp Pike, Capt. GEORGE E. MAURER, New York City.

To Rockefeller Institute, for instruction, and on completion *to New York City,* for instruction, and on completion *to his proper station,* from Camp Taylor, Major JUNIUS H. McHENRY, New York City; from Camp Upton, Capt. FREDERICK P. HAMMOND, New York City. For instruction, and on completion *to Bellevue Hospital, New York City,* for instruction, and on completion *to his proper station,* from Camp Devens, Capt. EDWARD G. CLIFTON, New York City; from Camp Wheeler, Lieut. ARTHUR W. HUBBARD, Wyoming. On completion *to Fort Oglethorpe,* for instruction, Lieut. WILLIAM P. McCROSBIE, New York City.

To San Antonio, Texas, Kelly Field, to examine the command for nervous and mental diseases, from New York City, Capt. JOHN F. W. MEAGHER, Brooklyn; Lieut. JOHN T. MacCURDY, New York City; from Camp Bowie, Lieut. JOHN J. HUGHES, Mt. Vernon.

To San Francisco, Calif., for duty, from Presidio, Capt. THOMAS H. CHATTLE, Good Ground; Lieuts. PROSPER H. DE GREGORI, Brooklyn; JAMES H. VANMARTER, Groton; VINCENT V. McCABE, Millbrook; EDWIN M. JOHNSON, New York City; WILLIAM TROTTER, Troy.

To Vancouver Barracks, Wash., for duty, from Presidio, Lieut. ARTHUR H. WHEELER, Albany.

To Walter Reed General Hospital, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. MILTON W. PLATT, New York City

To Washington, D. C., for duty in the Surgeon-General's Office, Major EDWARD K. DUNHAM, New York City; from Camp Bowie, Lieut. FRANKLIN C. McLEAN, New York City.

Honorably discharged, Capt. WILLIAM A. DALTON, New York City.

To their homes and honorably discharged, Capts. ROBERT E. PETTIT. LEE E. SHONINGER, New York City.

To his home and to the inactive list, Lieut. WALTER M. KRAUS, New York City.

North Carolina

To Camp MacArthur, Waco, Texas, base hospital, from Fort Oglethorpe, Lieut. LOUIS N. WEST, Raleigh.

To Camp Meade, Annapolis Junction, Md., base hospital, from Camp Wheeler, Capt. ARTHUR S. PENDLETON, Raleigh.

To Camp Travis, Fort Sam Houston, Texas, for duty in orthopedic work, from Oklahoma City, Lieut. HUGH A. THOMPSON, Raleigh.

To Camp Wheeler, Macon, Ga., as division psychiatrist, Capt. ARTHUR S. PENDLETON, Raleigh. Base hospital, from Camp Sheridan, Capt. EVERETT A. LOCKETT, Winston-Salem.

To Fort Oglethorpe, for instruction, Maj. CHARLES O'H. LAUGHINGHOUSE, Greenville; from New York City, Capt. EDWIN B. FEREBEE, Raleigh. For instruction, Lieuts. JOHN C. DYE, Statesville; BURTON B. STURDIVANT, Sunburst.

To his home and honorably discharged, on account of being physically disqualified for active service, Lieut. EDMOND J. BRYSON, Fontana.

North Dakota

To Fort Riley, for instruction, Capt. JOHN E. COUNTRYMAN, Grafton; Lieuts. JOHN A. D. ENGESATHER, Brockett; AXOL OFTEDAL, Fargo; ALEXANDER C. MacDONALD, Fingal; ANDREW J. HEIMARK, Finley; GEORGE MONTAITH, Hazleton; THOMAS L. DePUY, Jamestown; WILLIAM F. MOERTZ, Lidgerwood; RALPH DEMING, Mercer; WILLIAM LaF. COWPER, Michigan; JOHN R. PENCO, Minot; JOSEPH A. SMITH, Moon; FRED T. RUCKER, Mott; JAMES F. HANNA, North Fargo; CHARLES R. TOMPKINS, Oberon; CECIL C. SMITH, Stanton; HILMAR T. SKOVHOLT, Williston.

Ohio

To Camp MacArthur, Waco, Texas, for duty, Lieut. ELMER E. LYNCH, Mt. Victory.

To Camp Pike, Little Rock, Ark., for duty, from Washington, D. C., Major EUGENE F. McCAMPBELL, Columbus.

To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. STARLING S. WILCOX, Columbus. For duty in orthopedic work, from Oklahoma City, Lieut. ZALMON O. SHERWOOD, Geneva.

To Camp Sherman, Chillicothe, Ohio, for duty, Lieuts. JACOB M. HOSKINS, Marion; HERMAN W. HONECK, Ridgeville Corners; CHARLES A. MOONEY, Youngstown.

To Chicago, Ill., Presbyterian Hospital, for instruction, Capt. JOHN A. CALDWELL, Cincinnati. For assignment to duty, from Camp Sherman, Lieut. DELPHUS B. VIRTUE, Iberia; CHARLES C. HATFIELD, Kingston.

To Fort Oglethorpe, for instruction, Lieuts. JOHN P. TUCKER, Cleveland; WILLIAM B. ROGERS, Hamilton; WILHELM H. VORBAU, Lima; HENRY SNOW, Jr., Norwood.

To Fort Riley, for instruction, Capt. ERNEST R. BROOKS, Cleveland; Lieuts. RAY C. ASH, Ashland; CHARLES W. BEAMAN, Cincinnati; ULYSSES M. BACHMAN, PAUL C. GAUCHAT, HENRY C. PRILL, Cleveland; ROBERT P. BAUSCH, HENRY E. BROOKS, FRANCIS T. GALLEN, Columbus; EDGAR D. ALLEN, Crooksville; FRANK A. LAWRENCE, Elyria; BONAPARTE P. DAVIS, Fort Jennings; JUSTIN G. BALLOU, Graytown; SYDNEY J. HAVRE, Kenmore; IRWIN H. BOESEL, McClure; JOHN D. BOYLAN, Milford Center; ROBERT E. WELLS, Nashport; BYRON BING, Pomeroy; DONALD M. BLIZZARD, Portsmouth; CARL H. GRAF, Sciotoville; WILBUR E. BEACH, Somerville; J. CRAIG BOWMAN, Upper Sandusky; WALTER E. DAPP, Youngstown.

To Philadelphia, Pa., and New York City, for duty in connection with the Gas Defense Service, and on completion *to his proper station*, Capt JAMES D. PILCHER, Cleveland. University of Pennsylvania, for instruction, from Camp Grant, Capt. JOSEPH E. PIRRUNG, Cincinnati. University Hospital, for instruction, Capt. WALTER B. TUNER, Youngstown.

To Rockefeller Institute, New York City, for instruction and on completion *to New York City* for instruction and on completion *to his proper station*, from Camp Green, Capt. HARRY T. MILLER, Springfield.

To San Antonio, Texas, Kelly Field, to examine the command for nervous and mental diseases, from Camp Sheridan, Lieut. JAMES A. BALYEA, Toledo.

To San Francisco, Calif., for duty, from Presidio, Lieuts. CALVIN D. TODD, McComb; JESSE C. EDWARDS, Columbus.

To Washington, D. C., American University, as assistant, from Washington, D. C., Capt. JAMES D. PILCHER, Cleveland.

To his home and honorably discharged, Lieut. FRANK E. SNIDER, Madisonville.

Oklahoma

To Camp MacArthur, Waco, Texas, for duty in orthopedic work, from Oklahoma City, Capt. LEONARD S. WILLOUR, McAlester.

To Camp Sherman, Montgomery, Ala., base hospital, from Camp Meade, Major FRED H. CLARK, El Reno.

To Fort Riley, for instruction, Lieut. DAVID C. WILLIAMS, Luther.

To his home and honorably discharged, Lieut. Charles C. Gardner, Ashland; on account of being physically disqualified for active service, Lieut. WILLIAM B. NEWTON, Muskogee.

Oregon

To Camp Dodge, Des Moines, Iowa, base hospital, from Camp Dodge, Capt. EDGAR H. BROWN, McMinnville.

To Camp Greene, Charlotte, N. C., for duty, from Army Medical School, Lieut. NIELS P. PAULSON, Portland.

To Fort Riley, for instruction, Lieut. LEONARD H. VINCENT, Crane.

To Western Department, as tuberculosis examiner, from Camp Kearny, Lieut. LEON G. HOLLAND, Portland.

Pennsylvania

To Camp Beauregard, Alexandria, La., to examine the command in his specialty, from Philadelphia, Capt. WILLIAM W. RICHARDSON, Mercer.

To Camp Doniphan, Fort Sill, Okla., base hospital, from Camp Dix, Capt. JOHN A. RODDY, Jr., Philadelphia.

To Camp Grant, Chicago, Ill., on completion of course at Chicago, Lieut. EDGAR N. FOUGHT, Philadelphia.

To Camp Greene, Charlotte, N. C., to assume command of Laboratory Car No. 201 (Reed) in addition to his other duties at that camp, Capt. CLAUDE P. BROWN, Glen Olden. For duty, from Camp Greene, Lieuts. JOSEPH G. FERNBACH, Philadelphia; ROY L. SCOTT, Sayre; from Camp Taylor, Lieut. FRANCIS E. EVANS, Philadelphia.

To Camp Hancock, Augusta, Ga., as divisional psychiatrist, from Camp Hancock, Capt. EDWARD A. STRECKER, Philadelphia.

To Camp Kearny, Linda Vista, Calif., base hospital, from Fort Oglethorpe, Lieut. CLAUDE W. McKEE, Greensburg.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. ARCHIBALD A. MacLACHLAN, Pittsburgh.

To Camp Meade, Annapolis Junction, Md., for duty, Lieuts. CLARENCE K. APPLE, Oak Lane Terrace; STUART H. BOWMAN, Philadelphia; MICHAEL J. McCARTHY, Pottsville; CYRUS W. TRUXAL, Wayne; from Army Medical School, Lieut. JULIAN F. MEYER, Philadelphia.

To Camp Meigs, Washington, D. C., for duty, from Army Medical School, Lieut. JOHN W. GOODSELL, New Kensington.

To Camp Shelby, Hattiesburg, Miss., for the special examination of the command for tuberculosis, from Camp Gordon, Lieut. ANDREW ANDERS, Philadelphia.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. CLAUDE W. McKEE, Greensburg.

To Camp Wheeler, Macon, Ga., to examine the command in his specialty, Lieut. RALPH L. HILL, Woodville.

To Fort Oglethorpe, for instruction, Major WILLIAM C. LaCOMPTE, Bristol; Capts. CHARLES J. SMYSER, New Wilmington; FRANK L. McCREADY, Sewickley; GEORGE E. ATWOOD, Valane; Lieuts. GEORGE W. LANG, Alicia; DANIEL BOHN, Altoona; FRED B. WILSON, Beaver; FRANK L. RICHARDS, Berwyn; JAMES R. GEMMILL, Canton; CHARLES E. HERMAN, Carnegie; CHARLES L. PRATT, Coatesville; WILLIAM J. BAILEY, Connellsville; FRANK H. LONG, Coopersburg; ROSS H. JONES, Coudersport; JOHN J. KOLSKI, Donora; SAMUEL B. ROSS, Dubois; ISAIAH C. MORGAN, Edwardsville; IVO E. ROWLAND, Elizabeth; BOYD W. SCHAFFNER, Ellwood City, WILLIAM G. SHEEHAN, Erdenheim; WILLIAM P. PATTERSON, Fairchance; HARRY E. LYONS, Fairview; WALLACE R. McCLELLAN, Garrett; ARTHUR E. BROWN, Greenville; ADAM S. KEPPLE, Hannastown; MELVILLE M. PALMER, Homer City; GARDNER A. SAYRES, Lancaster; FRANCIS J. KING, Lansdowne; FRANK L. SHENK, Linglestown; SLOIS F. SEIFRIS, Mars; JOHN L. MESSMORE, Masontown; HUBERT J. GOODRICH, McKees Rock; FRANCIS M. QUINN, Minersville; JAMES R. MORROW, Mount Union; HERBERT B. SHEARER, Norristown; FRANKLIN W. MATHEWSON, Oakdale; WILLIAM D. BAUN, JAMES W. BODLEY, CLARENCE D. DANIELS, ROLLA B. FORE, VICTOR J. B. FRIES, MARSHALL B. MORGAN, Jr., HARRY F. ROEPKE, EUGENE RUSH, FRANCIS P. SHANNON, PHILIP S. STOUT, THOMAS H. WALKER, Philadelphia; CHARLES R. BRENNER, SHAUL GEORGE, EDWARD C. LESLIE, Pittsburgh; CHARLES F. NETZEL, Plymouth; LEON C. DARRAH, EDWARD K. GOLDING, Reading; ABRAHAM J. KAISER, Saltsburg; DAVID E. GRIFFITHS, Scottdale; CLARE H. HANLEY, Scranton; BENJAMIN A. FRYE, Sharpesville; FRANCIS B. GRYCZKA, Simpton; MALCOLM D. KOLBEN, Slatington; JAMES B. McAVOY, South Bethlehem; EXRA P. DICKINSON, St. Michael; ARTHUR B. FLEMING, Temaqua; FRANK M. POGUE, Trafford; JOSEPH L. McGINLEY, WILLIAM T. PALCHANIS, Wilkes-Barre; OSCAR A. DELLE, York, New Salem; from Camp Wheeler, Lieut. REUBEN A. E. PETERSON, Allentown. To organize and command Hospital Train No. 36, from Fort Oglethorpe, Lieut. JAMES H. PAUL, Philadelphia.

To Fort Riley, for duty, from Chicago, Capt. LOUIS J. C. BAILEY, Greensburg; from New York City, Lieut. DAVID B. HAWKINS, Curwensville.

To Fort Rodman, Mass., for the special examination of the command for tuberculosis, and on completion *to Fort Adams, R. I.*, for the same duty, and on completion *to Fort H. G. Wright, L. I., N. Y.*, for the same duty, and on completion of these duties to report to the *Adjutant-General and Surgeon-General of the Army* for further orders, from Camp Devens, Lieut. HARRISON M. STEWART, Mount Alto.

To Fort Worth, Texas, Signal Corps, Aviation Section, for duty, from Warden City, Major WALTER S. CORNELL, Philadelphia.

To Lakewood, N. J., for duty, Major JOHN B. McGREARY, Shippensburg; Capts. DAVID C. VOSLER, Ellwood City; JOSEPH C. KEELER, Philadelphia; Lieuts. ETHAN A. CAMPBELL, Chester; WILLIAM N. JOHNSON, Philadelphia.

To Morrison, Va., for duty, Capt. NATHANIEL ROSS, Wilkes-Barre; Lieut. WILLIAM G. BARRYHILL, Washington.

To Philadelphia, Pa., for duty, Capt. MICHAEL A. BURNS, Philadelphia; from Camp Devens, Lieut. JOHN A. BERTOLST, Philadelphia, University of Pennsylvania, for instruction, Lieuts. ROFIN C. BUERKI, WILLIAM C. CHANEY, Philadelphia.

To Rockefeller Institute, New York, for instruction, and on completion *to his proper station*, from New York City, Major WILLIAM W.

BABCOCK, Philadelphia; for instruction, and on completion *to New York City*, for instruction, and on completion *to his proper station*, from Camp Jackson, Lieut. WILLIAM T. PYLE, Swissvale.

To San Antonio, Texas, Kelly Field, to examine the command for nervous and mental diseases, from Camp Sherman, Lieut. EMORY L. DRAVO, Warren.

To San Francisco, Calif., for duty, from Presidio, Lieuts. ROY C. MEALS, Columbus; JOHN D. DONOVAN, Renova.

To Walter Reed General Hospital, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. JAMES S. TAYLOR, Altoona.

Honorably discharged, on account of being physically disqualified for active service, Capt. JOHN J. GILBRIDE, Philadelphia; Lieuts. PERCY H. SHAW, Germantown; WILLIAM W. WATERS, Manticoke; EMLYN T. DAVIES, Old Forge; PAUL E. HASKETT, SAMUEL W. WOODHOUSE, Philadelphia; FRED H. HARRISON, Pittsburgh.

Rhode Island

To Fort Oglethorpe, for instruction, Lieuts. PATRICK A. DURKIN, ARTHUR J. FALCON, Pawtucket; CHARLES M. COLLINS, SIMON G. LENZER, Providence.

South Carolina

To Camp Custer, Battle Creek, Mich., base hospital, from Camp Wadsworth, Lieut. LINDSEY PETERS, Columbia.

To Fort Logan H. Roots, Ark., for duty, from Fort Moultrie, Capt. JOHN WALLACE, Easley.

To Fort Oglethorpe, for instruction, Capt. FRENCH A. SMITH, Mullins; Lieuts. GROVER C. BOLIN, Neeses; WILLIAM S. LYNCH, Scranton; THOMAS H. SYMES, St. Matthews; THEODORE MADDOX, Union.

To Philadelphia, Pa., for instruction in orthopedic surgery, Lieut. JAMES W. DAVIS, Statesville.

South Dakota

To Fort Riley, for instruction, Lieuts. FRANK D. WILSON, Armour; LORENS A. HAUG, Canton; JAMES H. CRAWFORD, Castlewood; LESTER R. HERMAN, Conde; JAMES D. EDGAR, Henry; DICKENSON O. WHEELOCK, Kampeska; HARLEY D. NEWBY, Parker; JAMES G. CARNEY, Parkston; EUGENE H. BOON, Tyndall.

Honorably discharged, on account of being physically disqualified for active service, Lieut. JAMES F. VALBY, Viborg.

Tennessee

To Camp Beauregard, Alexandria, La., for duty in orthopedic work, from Oklahoma City, Lieut. BENJAMIN L. SCHOOLFIELD, Memphis.

To Camp Kearny, Linda Vista, Calif., as a member of Aviation Section, Signal Corps, in addition to his other duties at that camp, HUGH T. MOORE, Chattanooga.

To Camp Meade, Annapolis Junction, Md., for duty, from Army Medical School, Lieut. ANDREW B. JONES, Nashville.

To Camp Meigs, Washington, D. C., for duty, from Camp Meigs, Lieut. WILLIAM V. PRUETT, Brownsville.

To Camp Sevier, Greenville, S. C., for duty, Lieut. BEVERLY T. NOLAN, Franklin.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Camp Travis, Lieut. CLYDE McK. BECK, Memphis.

To Fort Oglethorpe, for instruction, Capt. WILLIAM F. CLARY, Memphis; Lieuts. HARRY L. LOTT, BEECHER L. OGLE, Knoxville; CHARLES H. KYKER, Oliver Springs.

To Fort Riley, for instruction, Lieuts. PERCY D. BIDDLE, Columbia; GREEN W. McCONATHY, Eads; BEVERLY T. NOLEN, Franklin; JOHN E. SILVER, Jellico; SALVADOR L. BOCCELLATO, LYMAN H. CHAPMAN, Memphis; CHARLES S. MORROW, Nashville; SAMUEL N. ANDERSON, South Pittsburg; WILLIAM P. LAW, Westmoreland; HENRY C. ANDERSON, Williamsburg; from Fort Riley, Lieut. EUSTACE C. MASON, Bon Air.

To his home and honorably discharged, on account of being physically disqualified for active service, from Camp Sevier, Lieut. PIATT H. ANDERSON, Memphis.

Texas

To Camp Doniphan, Fort Sill, Okla., for duty in orthopedic work, from Oklahoma City, Lieut. MARION M. BROWN, Mexia.

To Camp Gordon, Atlanta, Ga., for duty in orthopedic work, from Oklahoma City, Lieut. FREDERICK E. HUDSON, Anson.

To Camp Logan, Houston, Texas, for duty in orthopedic work, from Oklahoma City, Capt. WILLIAM B. CARRELL, Dallas.

To Camp MacArthur, Waco, Texas, base hospital, Capt. CARMOTTE A. COBB, Beaumont; Lieuts. SAM R. GRIFFIN, Canyon; WILLIAM E. CAMPBELL, Cedar Creek; JOSEPH H. HICKS, Denton; WILLIAM L. CULPEPPER, Goose Creek; VERNER L. BAUGH, Grafton; SILAS G. CAIN, Haskell; HOWARD C. CURTIS, McKinney; WALTER PURVIANCE, Pampa. For duty, Lieut. DANIEL H. BROCK, Travis.

To Camp Travis, Fort Sam Houston, Texas, for duty from Camp Travis, Capt. THEODORE H. HARRELL, Gonzales; Lieut. JAMES S. BUIE, Hillsboro.

To Chicago, Ill., Presbyterian Hospital, for instruction, Capts. BERNARD F. SMITH, San Antonio; WILLIAM L. CROTHWAIT, Waco; Lieut. FRANK G. SANDERS, Fort Worth.

To Everman, Texas, for duty, LEITUS V. BESCOM COZBY, Grand Saline; LEAH D. CARTER, Robstown.

To Fort Oglethorpe, for instruction, Lieut. WREN E. SMITH, Dallas.

To Fort Worth, Texas, for duty, Capt. ARTHUR K. BOYD, San Angelo.

To Penbrook, Texas, for duty, Lieuts. ROBERT BAILEY, Coleman; STERLING P. BOTHE, Westhoff.

Utah

To Camp MacArthur, Waco, Texas, base hospital, Lieut. LeROY PUGNIRE, Ogden.

To Fort Riley, Hospital Train No. 35, from Fort Riley, Lieut. WOODWARD B. MAYO, Salt Lake City.

Vermont

To Fort Oglethorpe, for instruction, Capt. EMMUS G. TWITCHELL, Burlington; Lieuts. FRANCIS J. ENNIS, Burlington; FRANK H. EVERETT, Castleton; PERCY E. BUCK, Glover; BERT D. GEORGE, Hardwick; MITCHELL D. CAREY, CHARLES P. CHANDLER, JULIUS E. DEWEY, FREDERIC W. HARRIMAN, Montpelier.

To Hoboken, N. J., for duty, from Army Medical School, Capt. FREDERICK E. CLARK, Burlington.

Virginia

To Camp Greene, Charlotte, N. C., for duty, from Camp Sheridan, Lieut. HERBERT W. ROGERS, Nassawadox.

To Camp Meigs, Washington, D. C., for duty, Lieut. CLIFFORD A. FELKES, Roanoke.

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Lieut. DORSEY G. TYLER, Richmond.

To Fort Oglethorpe, for instruction, Lieuts. WILLIAM S. PETERS, Jr., HARRY R. SMITH, Appalachia; WILLIAM T. WIMBISH, Clarksville; ERNEST B. MILLER, Elkton; CARROLL S. HOWELL, Franklin; JOHN T. RAMSEY, Glamorgan; WILLIAM WILSON, Greenwood; LEWIS S. HERNDON, MacMeadows; OSCAR E. HEDRICK, Museville; GEORGE W. SCHENCK, Norfolk; JOHN B. FOSTER, Ocean View; CHARLES F. DAVIS, Jr., Pleasant; CHARLES E. DYER, Pulaski; JOHN O'BRIEN, Jr., ROBERT G. WILLIS, Richmond; JAMES T. NEEL, Shawver Mill; EARLY B. DOVELL, Somerset; LOUIS S. HAYNES, Taylor's Store.

To Newport News, Va., for duty, Lieut. SAMUEL DOWNING, Wicomico Church.

To Rockefeller Institute, New York City, for instruction, and on completion *to Bellevue Hospital*, New York City, for instruction and on completion *to his proper station*, from Camp Lee, Major SAMUEL B. MOORE, Alexandria.

To San Francisco, Calif., for duty, from Presidio, Lieut. JOHN H. HARE, Newland.

Washington

To Camp Lewis, American Lake, Wash., base hospital, from Camp Lewis, Capt. ALBERT C. STEWART, Fort Steilacoom.

To Rockefeller Institute, New York City, for instruction, and on completion *to his proper station*, from Camp Custer, Lieut. JOHN M. HENDERSON, Seattle.

To Vancouver Barracks, Wash., for duty, Lieut. SHELBY O. SHURICK, Seattle.

West Virginia

To Camp Greene, Charlotte, N. C., for duty, from Camp McClellan, Lieut. CHARLES R. IRVING, Hansford.

To Morrison, Va., for duty, Lieut. WILLIAM M. COOK, Algoma.

Wisconsin

To Fort Riley, for instruction, Capts. HARRY A. JEFFERSON, Clintonville; PATRICK R. MINAHAN, Fond du Lac; ROBERT S. STERNBERG, Milwaukee; VERNON ROBERTS, National Soldiers Home; FRANK S. TUFFLEY, Roscobel; CLIFFORD W. ANDREWS, Waupaca; Lieuts. GEORGE W. GROSWOLD, Alma Center; EARLE F. McGRATH, Appleton; HAROLD McM. HEIM, Beloit; HAROLD N. O'BRIEN, Darion; JOSEPH C. BAIRD, Eau Claire; FLOYD E. SHEARER, Edgerton; CLARK L. CAIN, Elmwood; JOHN E. SIMPSON, Endeavor; CHARLES F. REHLING, Fremont; PAUL M. CLIFFORD, Green Bay; WILLIAM E. BUCKLEY, Hartford; DANA B. DISHMAKER, Kewaunee; GEORGE R. REAY, LaCrosse; EDWARD C. PFEIFER, Loyal; FRANCIS T. H'DOUBLER, Madison; WILLIAM E. DONOHUE, Manitowoc; RUSSELL R. HEIM, Marinette; ORLANDO F. PARTRIDGE, Mattoon; LEONARD J. BACHINSKI, JOHN R. SHEEHAN, JOHN W. SMITH, WILLIAM F. WEINGART, Milwaukee; HOMER D. LUDDEN, Mineral Point; EDWIN H. FEDEMAN, Montello; ALEXANDER J. BERGER, New Holstein; JUDSON S. ALLEN, CLIFTON A. COOPER, Norwalk; OLE A. NELSON, Park Falls; HIRAM A. BUELL, Prairie Farm; WADE H. FORTNER, Princeton; CARL C. SCHAEFER, Racine; JOHN R. HUGHES, Redgeville; CARL C. BIRKELO, Rosholt; LLOYD D. CUTTING, VINCENT J. SHIPPY, Stevens Point; ALFRED L. OLSON, Stoughton; JOHN C. KYLLO, Superior; WILLIAM T. MURPHY, Waukesha; THOMAS F. LAUGHLIN, Winneconne.

To New York City, Cornell Medical College, for instruction in military roentgenology, and then *to Hoboken, N. J.*, Base Hospital No. 22, Capt. EUGENE A. SMITH, Milwaukee.

To San Francisco, Calif., for duty, from Presidio, LLEWELLAN H. TREGLOWN, Livingston.

Wyoming

To Camp Kearny, Linda Vista, Calif., base hospital, Lieut. HAROLD M. BROWN, Sheridan.

To Fort Riley, for instruction, Lieut. LUTHER E. MITCHELL, Kaycee.

CORRECTION

Under "Orders to Officers of the Medical Reserve Corps":

Issue of January 12: *To his home* and honorably discharged, on account of being physically disqualified for service, Capt. JOHN R. WALKER, of Fort Madison, Ia., instead of JOHN H. WALKER of Alvord, Texas.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

New County Officers.—At the annual meeting of the Stanislaus County Medical Society, held in Modesto, Dr. Elwin F. Reamer, Modesto, was elected president; Dr. Fred W. McKibbon, Oakdale, vice president, and Dr. Fred R. De Lappe, Modesto, secretary-treasurer.

Personal.—Dr. Sidney R. Dannenbaum has resigned as professor of medicine of the College of Physicians and Surgeons of San Francisco.——Dr. Jean V. Cook, professor of pathology in the University of California, has been appointed head of the pediatric department of Washington University, St. Louis.——Dr. Arthur D. Houghton, Los Angeles, was operated on for appendicitis at the Clara Barton Hospital, December 30, and is reported to be convalescent.——Drs. Albert H. Taylor and Edward S. Salomon have been given temporary appointments in the emergency service of the San Francisco Board of Health, succeeding Drs. Cuthbert M. Fleissner and J. F. Rogers, resigned to enter the military service.——Dr. Thomas N. Sample, Fresno, who was operated on recently in the Adler Sanitarium, San Francisco, is reported to be doing well.——Dr. Alfred R. Rogers has been appointed assistant health commissioner of Los Angeles.

DISTRICT OF COLUMBIA

Health of the District in 1916.—The annual report of the health officer of the District for 1916 and the first half of 1917 gives an exhaustive textual and tabulated analysis of vital and morbidity statistics for the period named, compared with previous years. The birth rate for 1916 was 20.16 per thousand, higher than any rate since 1906-1910, when the average was 20.48, and equal to the year 1914, when the rate was also 20.16. The stillbirth rate was 1.15, which was lower than previous years back to 1901. The death rate was 18.04, which was somewhat higher than for any year back to 1911, except in 1915, when the rate was 18.18. As usual, the rates for births, stillbirths and deaths were higher for the colored population than for the whites. An interesting tabulation is that of the most potent causes of death. The annual average death rate per hundred thousand for the periods 1906-1910, 1911-1915, and for the years 1915 and 1916, respectively, were, for the chief causes of death, as follows: organic heart disease, 169, 208, 204, 199; for pulmonary tuberculosis, 222, 194, 195 and 179; for pneumonia, all forms, 163, 155, 188, 168; Bright's disease, 131, 153, 171, 163; for acute nephritis, 18, 19, 22, 20; for typhoid fever, 35, 17, 12, 13. There were, during the 1916 epidemic of poliomyelitis, thirty-nine cases of the disease from March 6 to October 5, with six deaths. It is interesting to note from the report that following the judgment of the health officer the simple, unburdensome regulations in force in the district regarding poliomyelitis previous to the epidemic were continued, those of the conference of state and provincial health officers, much more drastic in character, not being put into effect, with results equally good, as the health officer insists. Separate reports of each department are given.

ILLINOIS

Dr. Wells Returns.—Dr. H. Gideon Wells has returned from Roumania to which country he was sent as a member of the American Red Cross Mission.

Hospital Chief Resigns.—Dr. Charles Joseph Swan, Evanston, chief of the staff of the Evanston Hospital, resigned, January 15, to enter the medical service. He has been assigned to duty at the base hospital, Camp Wheeler, Macon, Ga.

New Officers.—At the annual meeting of the Winnebago County Medical Society, held in Rockford, January 8, Dr. Robert C. Bourland was elected president, Dr. John E. Tuite, vice president, and Dr. William H. Cunningham, secretary-treasurer, all of Rockford.

The State Centennial.—The Illinois State Medical Society has begun the preparation of a comprehensive history of medicine during the one hundred years of statehood of Illinois. Dr. William O. Ensign, Rutland, is chairman of the special subcommittee appointed to prepare a history of the Illinois State Medical Society; Dr. E. Fletcher Ingals, Chicago, is to undertake the preparation of a history of hospitals and medical schools of Chicago, and Dr. Mortimer Frank, Chicago, will write a medical history of the medical journals and libraries. It is also purposed to prepare an exhibition, which will be held in May.

Chicago

Ophthalmologists Elect Officers.—At the annual meeting of the Chicago Ophthalmological Society, January 21, Dr. Heman H. Brown was elected president; Dr. Thomas O. Edgar Dixon, vice president; Dr. Alfred N. Murray, secretary, and Dr. Jacob F. Burkholder, treasurer.

Antitoxin Controversy.—Dr. C. St. Clair Drake, Springfield, state director of public health, charges that the city health department has been lax in handling antitoxin supplied by the state department of health, and has drawn more than its share of the free supply. He states, furthermore, that 843 packages of antitoxin furnished to the city health department between Jan. 1, 1916, and June, 1917, have been unaccounted for. Health Commissioner Robertson has requested an emergency appropriation of $2,500 for diphtheria antitoxin.

KENTUCKY

Midland Physicians Meet.—The Kentucky Midland Medical Society held its quarterly meeting in Paris, January 10, under the presidency of Dr. Sidney J. Anderson, Midway. Dr. Charles A. Vance, Lexington, was elected president; Dr. James L. Toll, Lawrenceburg, vice president, and Dr. John D. Maguire, Lexington, secretary-treasurer.

Venereal Clinic at Louisville City Hospital.—For the protection of soldiers at Camp Zachary Taylor, a venereal clinic will be established at the Louisville City Hospital, under recommendations made to the United States Public Health Service by Surg. Lunsford D. Fricks, in charge of sanitary conditions in the extracantonment zone, who has secured the cooperation of the local health authorities, the American Red Cross and the City Hospital.——Dr. Henry Enos Tuley, superintendent of the City Hospital, has arranged for the enlargement of the existing venereal clinic at the hospital and the extension of the hours to include a night clinic. Free treatment will be given to all soldiers, as well as civilians, who are afflicted with venereal diseases.——The government will provide medicine and nurses, the latter to work especially in conjunction with the newly established social service department of the hospital, under the supervision of Miss Mary Alexander.——The superintendent of the hospital has appealed to the commanding general of the Eighty-Fourth Division to remove the hospital from the restricted zone, as outlined by the provost marshal of the camp, to enable officers and men to visit the hospital. Officers at present cannot visit the Jefferson County Medical Society meetings held in the hospital amphitheater, nor consult the county medical library which is housed there. The Board of Public Safety and Surgeon Fricks have been asked to join in this request.

MARYLAND

University of Maryland Medical Department Open to Women.—The University of Maryland, by a recent ruling of the faculty, beginning the next October term, will accept women students in the medical department. This ruling admits women to every department of the university, as they have been accepted in the dental, pharmacy and law departments for some time.

Personal.—Dr. Charles A. Reifschneider, senior resident surgeon at the University Hospital for the last year, has been appointed superintendent of the institution in place of Lieut. Harry M. Stein, M. R. C., who has been ordered to Camp Meade.——Dr. Edward J. Cummings, for the past six months medical superintendent of St. Agnes' Hospital, who recently received a commission of junior lieutenant in the United States Navy, has left for duty at a naval training station.——Dr. John G. Long has been appointed superintendent at the hospital to succeed Dr. Cummings.

Meetings.—At the meeting of the Baltimore County Medical Society, January 16, at Osler Hall, Baltimore, the following officers were elected: Dr. J. Percy Wade, president; Dr. Frank W. Keating, vice president; Dr. Samuel J. Fort, secretary, and Dr. Alfred Gundry, treasurer.——A symposium on "The Modern Treatment of Wounds" was held at a meeting of the Baltimore City Medical Society in Osler Hall, January 18. Major George A. Stewart, M. R. C., spoke on "Work at the War Demonstration Hospital," and Dr. George Loewy, French Army Medical Corps, of the Rockefeller Institute, addressed the meeting on "The Carrel-Dakin Method of Wound Treatment." The discussion was opened by Drs. William S. Halstead and Alexius McGlannan.

NEW YORK

Smallpox.—Sanitary Supervisor Sears has warned residents of Syracuse to keep away from Utica and Frankfort, where there are said to be ninety cases of smallpox.

Farewell to Base Hospital.—The Rochester Medical Association tendered a farewell dinner to the Rochester Base Hospital No. 19, at the Genesee Valley Club, January 2. Dr. Elmer J. Bissell presided; 150 guests were present.

Daylight Saving.—A bill to carry a daylight-saving plan into effect is under consideration by the committee on interstate commerce of the house of representatives. In substance it provides that the clock be advanced one hour in April and moved back in September. The Health Department of New York City has expressed its approval of this measure in the interests of public health, believing it will promote outdoor life.

Plan for the Prevention of Venereal Diseases.—The state department of health announces in the December *Bulletin* that it purposes adopting a plan for the control of venereal diseases somewhat similar to that of the Social Hygiene Society of Oregon. A committee has been appointed to take charge of this particular branch of public health work, composed of four members of the departmental staff and the secretaries of the American Social Hygiene Society and the New York Social Hygiene Society.

Bill to Make New York Dry.—The Anti-Saloon League has introduced a bill into the legislature which would make New York state bone dry from Oct. 1, 1918, for the period of the war and for a demobilization period for one year thereafter. The bill provides for the manufacture and sale of alcoholic liquor for medical, mechanical, scientific or sacramental purposes, where such manufacture and sale are not now excluded by the vote of the people. Governor Whitman has indicated that he will sign the bill.

Clinics for After-Care of Infantile Paralysis.—The third series of clinics for the after-care of infantile paralysis victims is now being held throughout the state under the auspices of the state department of health. The clinical staff of the traveling unit consists of Dr. LeRoy W. Hubbard, Mount Vernon, and four specially trained nurses. Since undertaking this enterprise, 160 clinics have been held at various centers of population at which 3,800 individuals have been examined and treated. To date seventy-six operations have been performed, and braces or some form of apparatus have been furnished to 527 cripples. All of the cases have been seen repeatedly by state supervising nurses.

New York City

Jurors Make Contribution to Hospitals.—The first panel of the sheriff's jury, at its recent dinner at Delmonico's, gave the $5,000 which it is accustomed to spend on expensive souvenirs to the various hospitals of the city.

Harvey Society Lecture.—The next in the present series of the Harvard Society lectures is to be delivered by Prof. John Gordon Wilson, Chicago, February 9. The subject is "The Effect of High Explosives on the Ear."

Personal.—Dr. J. Lewis Amster of the Bronx has been appointed commissioner of health of New York City, to succeed Dr. Haven Emerson, who has been commissioned major in the Medical Reserve Corps, and has been assigned to duty in the Surgeon-General's Office, Washington, D. C.——Dr. George Gray Ward, Jr., has been appointed chief surgeon and surgical director of the woman's hospital, succeeding Dr. Clement Cleveland, who has resigned.——Dr. Isidore H. Goldberger has been reappointed chairman of the Bronx County Milk Commission, and has associated with him Drs. Samuel Rosenzweig, Vincent S. Hayward, Stella Shaffer-Epstein and William L. Rost.

Massage Operators Must Be Licensed.—The *Bulletin* of the New York City Health Department calls attention to the fact that few physicians know that there is a city ordinance requiring that every person giving massage treatment, either manual or mechanical, with the exception of physicians, osteopaths and registered nurses, must have a license from the department of licenses. In addition to the license, those giving massage treatment must have a certificate from the health department showing that the applicant is free from communicable disease.[9] Both the license and the health certificate must be shown to any one on demand, and physicians should demand to see both from any one whom they intend to employ to give massage. The ordinance also requires that a massage operator before giving treatment to a patient of the opposite sex in his or her office must receive a written order from the physician, stating the number of treatments to be given, not to exceed ten on any one order.

OHIO

Personal.—Dr. Irwin W. Sherwood has been elected president of the West Side Board of Trade, Columbus.——Dr. Michael A. Bartley, Columbus, is reported to be seriously ill at Mount Carmel Hospital.

Protest Tax Legislation.—At the regular quarterly meeting of the Council of the Ohio State Medical Association, held in Columbus, January 7, the following resolution was adopted:

Resolved, By the Council of the Ohio State Medical Association, after a careful investigation of Section 209 of the War Revenue Law: That that provision is entirely unfair, and works a serious injustice to professional men, this injustice being more particularly marked in the case of physicians, who without exception have always done a large amount of charity work, and who in particular as the result of the war have had increased work with lessened incomes:

That the tax is particularly obnoxious because it imposes a special burden upon men who earn their incomes, while it exempts from that burden owners of inherited wealth, who earn nothing but are simply parasites:

That we, therefore, call upon our representatives in Congress to use their utmost endeavors to secure a repeal of this unjust and onerous tax which, so far as we can learn, has not been imposed, or even contemplated, in any of the other countries engaged in the present war.

Cincinnati

Academy Election.—At the annual meeting of the Cincinnati Academy of Medicine, January 7, the following officers were elected: president, Dr. J. Ambrose Johnston; vice presidents, Drs. Gordon F. McKim and Nora Crotty; secretary, Dr. William R. Abbott, and treasurer, Dr. Alex G. Drury.

Personal.—Dr. Charles A. Robins has resigned from the resident staff of the General Hospital, to accept a position in Chicago.——Dr. George A. Fackler was elected president, and Dr. Edward W. Walker, vice president, of the Cincinnati Board of Health, at its meeting for organization, January 9.——Dr. Samuel R. Geiser was elected president of the Bethesda Hospital, at the annual meeting of the board of directors, January 9.——Health Officer Landis was elected chairman, and Dr. Martin H. Fischer, vice chairman, of the Public Health Council of Cincinnati, at its meeting, January 4.

PENNSYLVANIA

Personal.—Dr. George E. Benninghoff, Oil City, was operated on at the Bradford Hospital for the removal of gallstones, January 9, and is reported to be doing well.——Dr. Philip Y. Eisenberg has been elected president of the Charity Hospital, Norristown.

New Officers.—Allegheny County Medical Society at Pittsburgh, January 8: president, Dr. Ellis S. Montgomery; vice president, Dr. Adolph Krebs; secretary, Dr. William H. Mayer, and treasurer, Dr. William C. Bryant.——Lehigh County Medical Society, twenty-first annual meeting, at Allentown, January 8: president, Dr. Calvin J. Otto; vice president, Dr. Victor J. Gangewere, Rittersville; secretary, Dr. William C. Masonheimer, and treasurer, Dr. Willard D. Kline. Officers on duty at the Allentown Camp were guests of honor on this occasion.

Philadelphia

Health Board Appointments.—Dr. Sylvester J. Deehan has been appointed assistant diagnostician in the bureau of health, and Israel Cohn has been appointed assistant inspector.

New Section of College of Physicians.—The College of Physicians has organized a section on industrial medicine and public health, which will hold meetings in October, December, February and April of each year.

SOUTH DAKOTA

New State Board Officers.—The state board of health and medical examiners, at a regular meeting held in Pierre, reorganized, electing Dr. Hampton R. Kenaston, Bonesteel, president; Dr. Charles E. McCauley, Aberdeen, vice president, and Dr. Park B. Jenkins, Waubay, secretary. The other members of the board are Drs. Arthur S. Jackson, Lead, and Charles A. Bower, Mitchell.

District Society Meetings.—Yankton District Medical Society, at Yankton, December 20: president, Dr. Frank C. Smith, Yankton; vice president, Dr. Frank V. Willhite, State Hospital, and secretary-treasurer, Dr. James Roane, Yankton.——Watertown District Medical Society, at Watertown,

December 11: president, Dr. Paul Hendriksen, Vienna; vice president, Dr. Olaf A. Haraldson, Watertown, and secretary-treasurer, Dr. Mathew J. Hammond, Watertown.

VIRGINIA

Physician Convicted.—Dr. Asa W. Chamberlin, Goochland, charged with the murder of his brother, Albert P. Chamberlin, formerly a lawyer of Des Moines, Iowa, is said to have been found guilty of murder, January 8, and sentenced to imprisonment for life.

New State Society Officers.—At the forty-eighth annual meeting of the Medical Society of Virginia, held in Richmond, the following officers were elected: president, Dr. Ennion G. Williams, Richmond; vice presidents, Drs. Smelt V. Dickinson, Marion; Harry T. Marshall, Charlottesville, and Frederick P. Sutherland, Halifax County, and secretary-treasurer, Dr. Paulus A. Irving, Farmville.

Southside Physicians Meet.—At the annual meeting of the Southside Medical Association, held in Petersburg, December 12, the following officers were elected: president, Dr. Paulus A. Irving, Farmville; vice presidents, Drs. D. Lemuel Harrell, Suffolk; Frank N. Mallory, Lawrenceville; William B. Daniel, Disputanta, and Arthur Hooks, Blackstone, and secretary-treasurer, Dr. Rufus L. Raiford, Sedley.

Academy Election.—At the annual meeting of the Richmond Academy of Medicine and Surgery, the following officers were elected: president, Dr. Thomas W. Murrell; vice presidents, Drs. Wyatt S. Beazley; George C. Woodson, and Ramon D. Garcin; secretary, Dr. Mark W. Peyser (reelected for the twenty-fifth term); assistant secretary, Dr. Emmett H. Terrell (reelected), and treasurer, Dr. Howard Urbach.

WISCONSIN

Oshkosh Gets Laboratory.—The state board of health, January 4, selected Oshkosh as the location for a joint cooperative hygiene laboratory.

State Board Election.—At the annual meeting of the state board of health, held in Madison, January 4, Dr. William F. Whyte, Madison, was reelected president; Dr. Edwin F. Hayes, Eau Claire, vice president, and Cornelius A. Harper, Madison, state health officer.

Personal.—Dr. David V. Meiklejohn has been appointed oculist, aurist, rhinologist and laryngologist for the Soo Line at Fond du Lac.—Dr. Walter F. Seymour, Reedsburg, has returned to his work as a medical missionary of the Presbyterian Board in China, after a vacation of a year.

New Officers for Milwaukee Society.—At the annual meeting of the Milwaukee Medical Society, January 8, the following officers were elected: president, Dr. Richard Dewey; vice presidents, Drs. Charles H. Stoddard and Albert W. Myers; secretary, Dr. Oscar Lotz, and treasurer, Dr. Joseph P. McMahon.

Staff Election.—At the annual meeting of the medical staff of the Emergency Hospital, Milwaukee, it was urged that the county hospital be removed to the city in order to eliminate the transportation of patients, which is now necessary. Dr. Daniel Hopkinson was elected president of the staff; Dr. Chester M. Echols, vice president, and Dr. Oscar Lotz, secretary.

CANADA

Combined Inquiry Into Venereal Diseases and Feeblemindedness.—Mr. Justice Hodgins, Toronto, the commissioner who has been making an exhaustive inquiry into the practice of medicine in Ontario with a view to a new medical act, has been commissioned by the Ontario government to make another inquiry into the extent of feeblemindedness in the province, and at the same time the extent and prevalence of venereal diseases in Ontario. At the first session, several prominent medical men were present, representing various medical and social bodies, and his lordship took down the names of all present, and promises to make a thorough investigation for the benefit of the legislature, which will shortly convene in Toronto.

Social Diseases in Ontario.—Dr. Charles K. Clarke, superintendent of the Toronto General Hospital, and dean of the Faculty of Medicine, University of Toronto, has penned a series of letters to the public press on the social diseases. The following recommendations have been made for the help of the government in devising any legislation to meet the situation: 1. Registration without name and address. 2. Public registration and isolation of recalcitrants. 3. Free treatment of all who apply for it. 4. Free bacteriologic and blood tests. 5. Supervision of mental defectives. 6. The administration of the plan by a Dominion body through or in cooperation with provincial boards of health. It is believed that this will involve in the near future a Dominion Board of Health for all Canada.

GENERAL

Roentgenologists Meet.—The annual scientific meeting of the Western Roentgen Society was held in Chicago, January 24 to 26, under the presidency of Dr. Miles B. Titterington, St. Louis.

Coming Retirements in Army and Navy.—During 1918, four members of the Medical Corps of the Army and two medical officers of the Navy arrive at the retiring age of 64. These are as follows: Brig.-Gen. Henry P. Birmingham, M. C., U. S. Army, March 15; Col. William O. Owen, M. C., U. S. Army, July 6; Col. Rudolph G. Ebert, M. C., U. S. Army, August 29; Med. Dir. William R. DuBose, U. S. Navy, September 12; Major.-Gen. William C. Gorgas, Surgeon-General, U. S. Army, October 23, and Med. Dir. Francis S. Nash, U. S. Navy, November 23.

Bequests and Donations.—The following bequests and donations have recently been announced:

Altoona (Pa.) Hospital, $50,000, by the will of Mrs. Harriet Prevost.

University of Maryland, the medical library and surgical instruments of the late Dr. Charles F. Bevan.

Jewish Hospital, Louisville, a donation of $100,000 from I. W. and B. Bernheim, Louisville, in memory of their father.

Oshkosh County (Wis.) Tuberculosis Sanitarium, $20,000, by the will of Col. John Hicks.

Babies' Hospital, New York, $4,000, the proceeds of a benefit concert.

Hahnemann Hospital, Philadelphia, $5,000 to endow a free bed ward in memory of her parents, by Elizabeth W. Semple.

Philadelphia College of Pharmacy, a bequest of $10,000, by the will of Joseph P. Remington, with the direction that the income of this trust fund to be used "to assist worthy and deserving students in the payment of their tuition fees."

Porto Rico Physicians Meet.—At the annual meeting of the Porto Rico Medical Society, held in San Juan, December 22 and 23, under the presidency of Dr. Jorge Del Toro, the following officers were elected: president, Dr. Jose S. Belaval, San Juan; vice president, Dr. Rafael Lopex Nussa, Ponce; secretary, Dr. Augustin R. Langier (reelected), San Juan, and treasurer and delegate to the American Medical Association, Dr. Borrero Jacinto Avilés (reelected), San Juan. Ponce was selected as the next place of meeting. On the evening of December 21, the association held a public conference in the city hall, San Juan, at which the care and feeding of children were discussed. On the evening of December 22, a smoker was given at the social hall of the Y. M. C. A. The final session of the association was a patriotic meeting at the Porto Rico Casino, where a large audience gathered to hear speeches by prominent men of San Juan, and to witness the showing of the work done by the American Red Cross.

FOREIGN

Red Cross Festa.—A unique celebration was held in Rome on Christmas Day, commemorating a new record of American enterprise in relief work. On this occasion the national surgical dressings branch of the American Red Cross turned over a million surgical dressings which had been completed by 100 Italian women in four weeks.

Physician Imprisoned in Germany for Publishing Book.—According to the *Progrès médical* of Paris, Professor Nicolai of Berlin has been imprisoned. It says:

"The correspondent of the *Observer* at Berne announces that Prof. G. F. Nicolai, formerly physician to the imperial family and professor of physiology at the University of Berlin, has just been condemned to imprisonment in a fortress and his property confiscated.

"This measure was taken in consequence of the publication of a book entitled 'The Biology of War' in which Professor Nicolai pointed out the warping of the conceptions of German scientists and military men in the course of the hostilities. Among other things, he said:

"'The military personage who is numbered among the most prominent, but whose name I shall not mention, enquired of me whether it might not be possible to fix shells with cholera germs or plague bacilli so that the shells could be sent back of the front firing line.

"'As I replied to him that I did not think it would do to use procedures so lacking in humanity, he answered me in a tone tinged with contempt. 'Humanity is not to be considered in this war, and Germany has a right to do everything she pleases.'"

"Professor Nicolai added that in Germany millions of people are reasoning the same way as this man, who in other ways has manifested marked superiority of character. Others, he continues, have even more cruel ideas. He describes how a medical officer on the general staff inquired of him whether it would not be possible to inoculate the Russians with bacteria, saying, 'With such cattle, everything is legitimate.'"

The *Progrès Médical* of a later date goes on to relate that Professor Nicolai, author of the book "Biology of War" has been condemned to five months' imprisonment by the court at Danzig for "refusal of civilian service." It adds, "We recall that Professor Nicolai refused energetically to have anything to do with making of bombshells to contain the germs of cholera or plague bacilli, and to inoculate Russian prisoners with bacteria."

LONDON LETTER

LONDON, Jan. 1, 1918.

Medical Tests for Recruits: A New Departure

A new departure in the medical examination of recruits consists in the recognition of an efficiency standard in addition to the so-called standard of health. In future, what a man can do is to be one of the chief tests of his fitness or unfitness for military service. Mere "abnormalities" which do not incapacitate will be accorded little weight, though, of course, experience will be made use of to determine how far an abnormality is likely to interfere with working capacity. Often the man's occupation, such as that of blacksmith, navvy or miner, or the exercise he takes, such as football, cycling, walking or the distance he covers by walking or cycling in a day's work, will show that he is able to do the physical work of Grades 1 or 2. But sometimes the examiners will have no such guides. They will then see how he responds to such exertion as can be performed before them. A man is no longer to be condemned merely bcause of cardiac murmurs or because slight irregularities are present. "That is sound which works" is the underlying idea of the new instructions. This doctrine is further emphasized when it is laid down that "in a young subject, albumin in the urine is not in itself a disqualification for Grade 1;" though the need for careful examination to make sure that no organic disease is present is enjoined. In the case of epilepsy it is recommended that "if a man states that he is the subject of this disease but no attacks have occurred for seven years and there are no marked symptoms of instability of the nervous system, he may be placed in the grade for which he is otherwise suited. If the symptoms of instability are present he is at best fit only for Grade 3." Diseases of the heart are dealt with in accordance with the most recent teaching. If no organic disease known to advance to incapacity is present, efficiency, as shown by the man's ability to do work and perform the duties of his life, is to be the test of fitness. Application of the same rule excludes a number of disabilities which are not in themselves serious, but which render a man of small use as a soldier on active service. Among these are chronic bronchitis, cleft palate, clubfoot, corns associated with deformities of the feet, eczema, flatfoot, hammer toes, and hernia. Each case will be judged on its merits, but sufferers from these conditions will in all probability be graded low. Men showing mental weakness or instability will be rejected. In the case of infectious disease, special precautions will, of course, be taken. The examinations will be carried out in circumstances which should inflict the minimum of discomfort. Recruits will be seen at some stage of their examination by each member of the board. When opinions are equally divided, the chairman will have the casting vote.

The First American Red Cross Train Constructed in England

The Midland Railway Company has just completed the first of a series of ambulance trains for the American expeditionary forces. The train has been built to the designs and specifications of the ambulance subcommittee of the railway executive. It is the last word in ambulance trains, and both in its general arrangements and in many of its details embodies the experience gained during three years' warfare. It consists of sixteen cars, is 913 feet long over buffers, and its weight unloaded, apart from the engine, is 435 tons. It has accommodations for 393 cot patients, in addition to a staff of fifty-seven. There are nine ward cars, one infectious ward car, a pharmacy car, a staff car, a personnel car, two kitchen cars, and a brake and stores car. Each car is 54 feet long, is mounted on four-wheeled bogies, and is equipped with a Westinghouse brake. The coupling, draw hooks, steam connections, and side chains are on the international standard. Each car is built of well seasoned timber, the exterior color being khaki without any relief save two large red crosses on a white ground on each side. For identification purposes the number of each car and the distinguishing letter are marked conspicuously on each side, and the train number is painted on the extreme ends of the train. The train is vestibuled, and is fitted throughout with electric lights and fans. All the roofs are semielliptic, with lofty and airy ceilings.

The interior construction of the car is such that it can be kept thoroughly clean with the least effort. The floors are covered either with linoleum or with lead painted with aluminum paint. Each car contains thirty-six folding cots in three tiers, the folding device enabling the cars to be used, if desired, for sitting patients. The sides and roofs of the cars are painted in glossy white enamel, and there is an ample supply of drinking water and conveniences, such as paper racks, ash trays, etc., for each patient. Apart from the drinking water, there is an abundant supply of water for general purposes—2,835 gallons—carried in tanks built on the roofs of the various cars. In this way each of the ward cars has a supply of 150 gallons, the pharmacy has a supply of 300 gallons, one of the kitchens 375 gallons, and the other 300 gallons, the infectious ward 195 gallons, and the other cars proportionately less, according to their requirements. The infectious ward car at one end of the train contains four wards, each fitted with six beds. There is also an attendants' compartment, with lavatory and toilet accommodation, and a guard's compartment. The staff car contains dining rooms and sleeping compartments for the medical officers and sisters, and lavatory, toilet and bath accommodation. The car is furnished with wardrobes, cabinets and book racks, and is finished and paneled throughout in polished mahogany. One of the kitchen cars contains an officers' pantry and cooks' room, with sleeping berths, dining table and seats. The kitchen is a spacious compartment fitted with an Army Dixie range, a Soyer stove, a hot water supply, and refrigerator. This car also contains a comfortably furnished sick officers' compartment, with wood lining and tables of polished mahogany. There is also a bath room. The other kitchen car contains, in addition to the kitchen accommodation already described, a large kit store, a mess room with folding table for the men, and a smaller mess for the noncommissioned officers fitted with two beds so that the senior noncommissioned officers may sleep there if they desire.

The personnel car is arranged similarly to the ward car, except that the mattresses of the beds are covered with American cloth, so that the beds can be used as seats by the staff during the day. Kit racks are provided, and there are small lockers under the beds. The pharmacy car comprises a dispensary and treatment room, medical officers' office, a linen room, a pantry for medical comforts, and an emergency compartment. The corridor in this car, like that between the tiers of beds in the ward cars, is wide enough to allow of the free passage of an army stretcher. The dispensary is fitted with cupboards and racks, and part of the car is partitioned off and provided with berths in which bad cases can be treated.

The train has been inspected by the American Ambassador and a number of American officers including Vice Admiral Sims and Major-General Bartlett; and also by British officers, Col. Sir Robert Jones, Sir William Osler, Surgeon-General Keogh and others.

The Hours of Employment of Munition Workers

In previous letters to THE JOURNAL, the report of a committee appointed to investigate fatigue among the munition workers was given. It was found that the excessive hours worked in the early stages of the war, with the object of producing as much as possible, had not the desired effect, but, on the contrary, reduced output. A further report has now been made which has the advantage of dealing with the effect of labor prolonged not through months but through years. Previous reports have shown that a point will always be reached in the work at which longer hours spent in the factory fail to increase output, and at which, if the hours of labor are made longer still, the productiveness of the worker will actually be diminished. Fuller and more accurate data have confirmed this opinion. The committee is now able to report with particular reference to the week as distinguished from the day. A reduction varying from seven hours to twenty in no case caused more than an insignificant diminution of total output, while on the average it produced a substantial increase. Alterations of hours may have different

effects in different operations, and experience must decide in each case the exact limit which cannot safely be exceeded; but that the hours worked weekly can, as a rule, be reduced with advantage to a total of from fifty to fifty-five is a general conclusion. In connection with production, account has to be taken, not merely of the slackness of work, voluntary or involuntary, the natural result of long and continuous toil, but also of the loss of time caused by absence through sickness, and by bad timekeeping. Moreover, the sickness of the worker may diminish earning capacity during future years. Long hours also are responsible not only for actual physical breakdown, but also for nervous irritability tending to increase industrial unrest and to produce such undesirable social conditions as are likely to affect those whose homes become merely sleeping places for overweary persons.

PARIS LETTER

Paris, Dec. 20, 1917.

Treatment of Wounds of Kidney and Ureter at the Front and Behind the Lines

This topic was the subject of a lengthy discussion by the service chiefs of the urologic centers at a meeting held at the military hospital Val-de-Grâce. Dr. Noguès, late chief of clinic at the Faculté de médecine de Paris, reported on the treatment employed at the front in cases of kidney and ureter trauma. His conclusions are: 1. Immediate intervention is indicated only in the presence of a hematoma, profuse or prolonged hematuria, and an intrarenal projectile. Discharge of urine from the wound is not, of itself, an indication for an immediate nephrectomy. 2. Any intervention to be made must be as restricted as possible, and a nephrectomy should be done only in cases of absolute necessity. 3. When doubt exists as to the existence of a ureterorenal lesion, the patient should be hospitalized and the case studied and recorded in detail so that a diagnosis can be made ultimately.

TREATMENT BEHIND THE LINES

Dr. Rochet, adjunct clinical professor of genito-urinary diseases in the Lyons faculty of medicine, studied the same question from the standpoint of the treatment to be adopted in these cases behind the lines. He believes that the principal operations that must be performed behind the lines are: (*a*) extraction of foreign bodies, even very small ones, not removed at the front; (*b*) closure of fistulas, not urinary (drainage, removal of fungosities, scrapings of bone lesions, etc.); (*c*) operations for urinary fistulas, into kidney or ureter, having failed to yield to expectant treatment, with or without ureteral catheterization; the operation to be considered at this time appears to be nephrectomy; (*d*) in cases of severe pyuria, treated unsuccessfully by ureteral or pelvic lavage, one could perform a nephrotomy. As to the future military fitness of those men who have sustained a renal trauma or wound, their cases should be studied carefully according to modern urologic methods.

Dr. Pasteau, chief of clinic at the Necker Hospital, stated that in these cases the surgery at the front is essentially urgent surgery, whereas the surgery behind the lines is really conservative and reparative surgery. At the front or in the absence of all signs one cannot make a diagnosis of gross concomitant lesions. The number of cases of kidney and ureter wounds occurring among penetrating wounds of the lumbar region is small (ten out of sixty-eight personal cases). When one does intervene, one must perform a nephrectomy only in case of necessity. At the rear, however, the kidney should be conserved, but no projectile known to be in or near the kidney should be left.

LEGUEU'S EXPERIENCE

Dr. Legueu, clinical professor of genito-urinary diseases in the Faculté de médecine de Paris, has observed about fifteen cases of kidney wounds, to which can be added ten necropsies reported by his students at the front. On the battle line, hemorrhage may be a reason for nephrectomy, but Legueu does not believe that the discharge of urine from a lumbar wound is of itself a sufficient indication for an urgent nephrectomy. Behind the lines, prolonged oozing of urine may justify nephrectomy when the kidney is much altered. A late secondary hemorrhage, due to the presence of an infarct, may perhaps be an indication for nephrectomy. Finally, nephrectomy may be indicated when foreign bodies are present. Even one small foreign body may cause serious disorders. Legueu observed a case of persistent and grave hematuria due to the presence in the kidney of a small piece of metal weighing 11 mg. Legueu does not believe that trauma of one kidney has any effect on its fellow. An infected kidney may have some effect on the other kidney, but in cases in which the wound remains aseptic, the connection between the well and the traumatized kidney remains doubtful.

Urethral Fistulas

At this meeting were also discussed the autoplastic procedures applicable to the treatment of fistulas of the urethra secondary to war wounds. Dr. Cathelin, chief surgeon of the urologic hospital, read a report on this subject, which led to a spirited discussion and the adoption of the following resolutions: 1. Abnormalities or mutilations of the external genital organs, the result of war wounds, should be corrected, and normal conditions restored for moral, esthetic, economic and social reasons. 2. These patients should be transported to the urologic centers in the interior, where they may be given the necessary preoperative treatment and such surgical treatment as indicated. 3. The various medical formations of the interior should immediately send these patients to the reparative or reconstructive urologic centers. 4. There does not seem to be any special method of treatment of urethral fistulas. Although the method of inversion gives excellent results, especially in the case of small fistulas, the various methods of division, autoplasty with flaps, or transplantation of mucous membrane should not be forgotten, particularly when there is much destruction of the urethral wall. 5. Experience having demonstrated the superiority of diverting the urine or intermittent catheterization, these methods should be given preference over continuous urethral catheter drainage. 6. It is useful to send later, if necessary, these patients back to the center where they have been treated, so as to unify methods of treatment. 7. For cases of severe mutilation, or almost complete division of the penis, every possible conservative treatment should be applied first; a primary amputation should never be done. 8. In cases requiring urgent surgery at the front, one should incise, but never excise, as the smallest skin tag may be of great usefulness for the performance of a subsequent autoplasty. 9. In the great majority of cases of this type in which autoplastic work is done, the patient again becomes fit for military duty. The only exceptions are cases in which the fistula is situated in the posterior urethra.

The Union of Foreign Colonies in France

The Union des colonies étrangères en France was formed for the assistance of war victims, to help the mutilated to be reeducated in some vocation, and to secure employment. A meeting was held recently under the presidency of M. Walter Berry. Reports read by M. J. Ascher, secretary-general, and Van Hemert, treasurer, detailed some very interesting data on the functioning of the union and the five establishments it has created and maintains for the work of reparation and reconstruction. There are now 900 members, and 2,291,575 francs ($458,315) have been collected; 963,181 francs ($192,636) from the American committee, presided over by Mme. Edmund Baylies; 435,150 francs ($87,030) from two Americans, M. and Mme. Stotesbury; 102,212 francs ($20,442) from the American Clearing House; 170,000 francs ($34,000) from the Norwegian Committee, presided over by M. Arthur Knagenhjelm, and 137,048 francs ($27,409) from the Holland Committee, presided over by M. Labouchère.

From May 1, 1916, to Aug. 31, 1917, 3,693 mutilated soldiers have been given vocational training in the five divisions of the Grand Palais, the quai Debilly, the Invalides, the Maison-Blanche at Neuilly-sur-Marne, and at the Ferme de Champagne at Juvisy-sur-Orge, where thirty-two trades are taught. Already 623 of these reeducated soldiers have been placed in self-supporting, and honorable situations. Mr. and Mrs. Stotesbury, who at first guaranteed only the expense of equipment and maintenance of the school at Maison Blanche, have again given further financial assistance. Thanks to American generosity, the union has been able to lease for twelve years the 212 hectares (21,200 acres) of the Ferme de Champagne. After the war, when the mutilated are reeducated, the union intends to receive war orphans here, and teach them agriculture. The expense of this enterprise has been met by the assistance given by the American Clearing House and the American Red Cross, from whom a donation of 400,000 francs ($80,000) has been received.

At its last meeting, the Académie de médecine elected as vice president (who becomes president in 1919), Prof. Samuel Pozzi, a member of the academy since 1896. He was elected by fort-four out of fifty cast.

Deaths

Capt. Robert Tracy Gillmore, M.D., M. R. C., U. S. Army, Chicago; died at Camp Greenleaf, Fort Oglethorpe, Ga., January 20, from a virulent streptococcus-influenza infection, after an illness of four days. Dr. Gillmore was a native of Chicago, and was 50 years of age. He was a graduate of the Northwestern University Medical School in 1892, and was clinical instructor in gynecology in that institution. He was a Fellow of the American Medical Association, and had served acceptably as secretary of the Chicago Medical Society. He was also surgeon for the South Side Elevated Railroad Company. He only recently accepted his commission as captain in the Medical Reserve Corps, and was ordered on active duty. He left Chicago for his new station, January 10. The funeral services were held and the body was interred at the National Cemetery, Chattanooga, Tenn., January 22.

Gilbert Prout Girdwood, M.D., Montreal, Que.; McGill University, Montreal, 1865; M.R.C.S. (Eng.), 1854; aged 85; formerly assistant surgeon, R. A. M. C., and assigned to duty with the Grenadier Guards; from 1869 to 1872 lecturer in practical chemistry in his alma mater; from 1872 to 1879 professor of practical chemistry; from 1879 to 1902 professor of chemistry, and since that time emeritus professor; for twelve years surgeon to the Montreal Dispensary and Montreal General Hospital, and later consulting surgeon to both institutions and to the Children's Memorial Hospital; consulting physician to the roentgen-ray department of the Royal Victoria Hospital; chief medical officer of the Canadian Pacific Railway; formerly president of the Roentgen Society of America; a fellow of the Chemical Society and Chemical Institute of Great Britian, and an original fellow of the Royal Society of Canada; one of the most eminent scientists of the Dominion; died at his home, October 2.

CAPT. ROBERT TRACY GILLMORE, M.D., M. R. C., U. S. ARMY, 1867-1917

Pavel Benjamin Tiffany, M.D., Kansas City, Mo.; University of Michigan, Ann Arbor, 1874; aged 71; a Fellow of the American Medical Association; formerly president of the Missouri Valley Medical Association, and Tri-State Medical Association; a member of the Mississippi Valley Medical Association; professor of ophthalmology and otology, and later president of University Medical College, Kansas City; a veteran of the Civil War; oculist for the Missouri, Kansas & Texas and Burlington systems; a specialist on diseases of the eye, and a prolific writer on topics connected with his specialty; died in St. Luke's Hospital, Kansas City, January 4.

Lieut. Henry Salem Pascal, M. R. C., U. S. Army; New York City; New York University, New York City, 1896; aged 43; a Fellow of the American Medical Association; assistant instructor in physiology in his alma mater for two years, and later instructor in histology in Cornell University Medical College; attending physician to the Loomis Sanitarium from 1898 to 1902; is reported to have died, November 17.

Abraham Stout, M.D., Bethlehem, Pa.; University of Pennsylvania, Philadelphia, 1855; aged 86; a member of the Medical Society of the State of Pennsylvania; major and surgeon of the One Hundred and Fifty-Third Pennsylvania Volunteer Infantry, during the Civil War; for several terms president of the Northampton County Medical Society; local surgeon of the Lehigh Valley Railroad; died at his home, January 9.

Charles Wheeler Boughton, M.D., Youngstown, O.; Northwestern University Medical School, Chicago, 1901; aged 44; a Fellow of the American Medical Association; died in a hospital in Youngstown, January 4, from the effects of an overdose of morphin, believed to have been self-administered, with suicidal intent, while despondent.

Frederic Powers, M.D., Westport, Conn.; College of Physicians and Surgeons, in the City of New York, 1870; aged 75; a Fellow of the American Medical Association; for more than forty years a practitioner of Westport, and for a long time health officer and medical examiner (coroner) of Fairfield County; died at his home, January 12, from cerebral hemorrhage.

Samuel William Torrey, M.D., Beverly, Mass.; College of Physicians and Surgeons in the City of New York, 1868; aged 74; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; founder of the Beverly Hospital; for several years a member of the local school committee; died in the Beverly Hospital, January 1.

Chauncey Sherrick, M.D., Monmouth, Ill.; Missouri Medical College, St. Louis, 1881; aged 59; a Fellow of the American Medical Association, and a member of the American Association of Railway Surgeons, and Mississippi Valley Medical Association; local surgeon of the Iowa Central Railway; died at his home, December 28.

Lieut. Stephen Ballard Rybolt, M. R. C., U. S. Army, Troy Mills, Iowa; St. Louis University, 1913; aged 44; a Fellow of the American Medical Association; assigned to duty with the Three Hundred and Fifty-First Infantry, N. A., Camp Dodge, Iowa; died at the Base Hospital, Camp Dodge, January 10, from heart disease.

Thomas James Taylor, M.D., Keubridge, Va.; New York University, New York City, 1860; aged 80; a member of the Medical Society of Virginia, and for several terms its vice president; surgeon in the Confederate service during the Civil War; died in Richmond, January 7.

Clinton Cullen Jones, M.D., Greenville, S. C.; Bellevue Hospital Medical College, 1882; aged 58; formerly a Fellow of the American Medical Association; a member of the South Carolina Medical Association; mayor of Greenville in 1903-1904; died at his home, January 6.

Carroll Cassius Smead, M.D., Newton, Iowa; Rush Medical College, 1880; aged 63; a Fellow of the American Medical Association; health officer of Newton; local surgeon of the Chicago, Rock Island & Pacific Railroad; died at his home, January 7, from cerebral hemorrhage.

James O'Donnell, M.D., Paterson, N. J.; Bellevue Hospital Medical College, 1892; aged 50; a Fellow of the American Medical Association; visiting physician and assistant gynecologist to St. Joseph's Hospital, Paterson; died in that institution, January 6, from nephritis.

John M. Evans, M.D., Evansville, Wis.; Rush Medical College, 1882; aged 59; a Fellow of the American Medical Association; for many years consulting surgeon for the Chicago and Northwestern Railroad; died in St. Mary's Hospital, Madison, Wis., January 7.

Archibald Alexander Howell, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1908; aged 36; a member of the Medical Society of the State of Pennsylvania; formerly a well known athlete; died in the Presbyterian Hospital, Philadelphia, recently.

John Joseph Flynn, M.D., Mount Holly, N. J.; University of Pennsylvania, Philadelphia, 1893; aged 50; formerly a Fellow of the American Medical Association; a member of the Medical Society of New Jersey; died at his home, January 2, from endocarditis.

Ellis Wadsworth Storms, M.D., Falconer, N. Y., University of Buffalo, N. Y., 1900; aged 49; a member of the Medical Society of the State of New York; formerly coroner of Chautauqua County; died at his home, January 10, from cerebral hemorrhage.

John A. McKay, M.D., Buies Creek, N. C.; Medical College of the State of South Carolina, Charleston, 1857; aged 87; formerly a member of the Medical Society of the State of North Carolina; died at his home, October 25, from cerebral hemorrhage.

Theodore E. Cooke, M.D., Baltimore; University of Maryland, Baltimore, 1859; aged 79; a Fellow of the American Medical Association; died at his home, January 13, from injuries received in a collision between his automobile and an electric car.

Annette S. Dobbins Richards Mack, M.D., Chicago; Northwestern University Woman's Medical School, Chicago, 1882; aged 78; formerly a member of the Illinois State Medical Society; died at her home, January 6, from cerebral hemorrhage.

Israel H. Betz, M.D., York, Pa.; Jefferson Medical College, 1868; aged 76; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; died at his home, January 6, from nephritis.

Charles Henry Burley, M.D., Chicago; Tulane University, New Orleans, 1904; aged 39; formerly a Fellow of the American Medical Association; died in Natchez, Miss., December 30, a day after an operation for disease of the stomach.

John S. Pearson, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1876; aged 63; a Fellow of the American Medical Association, and a member of the Obstetrical Society of Philadelphia; died at his home, January 5.

Mary L. Farnum, M.D., Portland, Ore.; Women's Medical College of Pennsylvania, Philadelphia, 1886; aged 59; for twenty years a practitioner of Woonsocket, R. I.; died in the Good Samaritan Hospital, Portland, December 31.

Charles S. Martyn, M.D., Mauch Chunk, Pa.; University of Pennsylvania, Philadelphia, 1893; aged 49; for many years a practitioner of Elizabethville, Pa.; died in Mauch Chunk, December 19, as the result of renal hemorrhage.

Paul S. Kaplan, M.D., New York City; University of Berlin, Germany, 1894; aged 70; know as the "Good Samaritan doctor of the East Side"; died in Beth Israel Hospital, New York City, January 6, from pneumonia.

Malcolm C. Roe, M.D., Chana, Ill.; Physio-Medical College, Cincinnati, 1872; Bennett Eclectic Medical College, Chicago, 1878; aged 75; a Fellow of the American Medical Association; died at his home, December 28.

George A. Krug, M.D., Utica, N. Y.; Albany (N. Y.) Medical College, 1881; aged 65; formerly a member of the Medical College of the State of New York; also a musician; died at his home, January 8, from pneumonia.

Frank Belville, M.D., Delaware City, Del.; College of Physicians and Surgeons, Baltimore, 1875, aged 65; a Fellow of the American Medical Association; died at his home, January 5, from nephritis.

Clinton J. Rumrill, M.D., Randolph, Vt.; Dartmouth Medical School, Hanover, N. H., 1900; a member of the Vermont State Medical Society; died at his home, January 7, from disease of the stomach.

John Richard Batson, M.D., Spencerville, Md.; University of Maryland, Baltimore, 1880; aged 65; formerly a member of the Medical and Chirurgical Faculty of Maryland; died at his home, December 24.

John F. Wilcox, M.D., Marmet, W. Va.; University of Louisville, Ky., 1883; aged 86; a member of the West Virginia State Medical Association; died at Old Point Comfort, Va., December 24.

George D. B. Dods, M.D., Chicago; College of Physicians and Surgeons, Chicago, 1895; aged 56; a Fellow of the American Medical Association; died in Valmora, N. M., January 9, from tuberculosis.

James Albert Monroe, M.D., Chicago; Rush Medical College, 1864; Bellevue Hospital Medical College, 1869; aged 75; formerly of Chenoa, Ill.; died at his home, January 3, from chronic nephritis.

John E. L. Habold, M.D., LaGrange, Ky.; University of Louisville, Ky., 1874; aged 64; a member of the Kentucky State Medical Society; died at his home, December 30, from pneumonia.

Charles Hermon Hervey, M.D., San Jose, Calif.; Eclectic Medical Institute, Cincinnati, 1884; aged 62; a Fellow of the American Medical Association; died at his home, December 27.

Joseph Granville Fudge, M.D., Spring Valley, Ohio; Illinois Medical College, Chicago, 1903; aged 52; a member of the Ohio State Medical Association; died at his home, January 2.

James Miles, M.D., Merom, Ind.; Medical College of Ohio, Cincinnati, 1897; aged 50; a Fellow of the American Medical Association; died at his home, January 7, from pneumonia.

Henri Louis Ducrocq, M.D., Lafayette, La.; Tulane University, New Orleans, 1898; aged 46; formerly a Fellow of the American Medical Association; died at his home, December 24.

Charles Rauschkolb, M.D., Columbus, Ohio; Columbus (Ohio) Medical College, 1891; aged 53; was beaten to death in his apartment in Columbus by an insane patient, January 3.

Matilda Watson Burns, M.D., San Francisco; Cooper Medical College, San Francisco, 1864; aged 64; also a druggist; died at her home, December 26, from cerebral hemorrhage.

Orville Penny Overton, M.D., Woodburn, Ore.; College of Physicians and Surgeons, Chicago, 1902; aged 40; died at the home of his mother in Brownsville, Ore., December 22.

Alice A. Brabb, M.D., Romeo, Mich.; Bennett Eclectic Medical College, Chicago, 1885, Hahnemann Medical College, Chicago, 1890; aged 61; died at her home, December 25.

Lieut. George Francis Owen, M. R. C., U. S. Army, Columbus, Ohio; Starling Medical College, Columbus, 1892; aged 49; died at his home, December 27, from uremia.

Joseph H. Horner, M.D., Concordville, Pa.; Jefferson Medical College, 1866; aged 73; died at the home of his daughter in Columbus, Ohio, December 27, from pyemia.

Elijah Branson, M.D., Henderson, Ky.; St. Louis College of Physicians and Surgeons, 1890; aged 62; died at his home, October 9, from cerebral hemorrhage.

John Hicks Lanier, M.D., Claybrook, Tenn.; University of Nashville, Tenn., 1866; aged 78; died at his home, December 31, from acute gastritis.

Charles W. Hoyt, M.D., Sharon, Pa.; Cleveland University of Medicine and Surgery, 1870; aged 78; died at his home, December 16.

William Robeson Polk, M.D., Minneapolis; University of Pennsylvania, Philadelphia, 1881; aged 64; died at his home, January 4.

Andrew T. Gum, M.D., Frankford, Del.; Maryland Medical College, Baltimore, 1907; aged 42; died at his home, December 24.

Homer Fremont Benson, M.D., Newport, Me.; New York University, New York City, 1881; died at his home, December 24.

William Edward Russell, M.D., Avinger, Texas; Vanderbilt University, Nashville, 1887; aged 52; died at his home, December 24.

Charles D. Camp, M.D., Chicago; Rush Medical College, 1870; aged 73; died at his home, January 8, from gangrene.

Franklin Benjamin Staub, M.D., Pittsburgh; University of Pittsburgh, 1899; aged 41; died at his home, January 3.

James T. Cleveland, M.D., Weston, Ga.; University of Nashville, Tenn., 1860; aged 78; died recently in Florida.

Marriages

LIEUT. STEPHEN HORACE CURTIS, M. R. C., U. S. Army, Troy, N. Y., on duty at the Department Laboratory, Southeastern Department, Atlanta, Ga., to Miss Frances M. Burnham, at Camp Gordon, Ga., January 16.

LIEUT. JAMES GEORGE CONLEY, M. R. C., U. S. Army, Racine, Wis., on duty at the Belleville (Ill.) Aviation Field, to Miss Hazel Chatfield of Eagle, Wis., at Belleville, January 2.

LIEUT. HERSHALL LAFORGE, M. R. C., U. S. Army, to Miss Irma Rosamond Williams, both of Kingsbury, Texas, at San Antonio, Texas, December 3.

LIEUT. HARVEY MAURICE SLATER, M. R. C., U. S. Army, Minneapolis, to Miss Marguerite Fairman Mers of Portland, Ore., December 25.

LIEUT. SAMUEL JACK TAUB, M. R. C., U. S. Army, to Miss Thelma Goldberg, both of Chicago, December 23.

ARTHUR M. SONNELAND, M.D., Norfolk, Neb., to Miss Josephine Johnson of Sioux City, Iowa, December 29.

WILLIAM HENRY CREAMER, M.D., Fall River, Mass., to Miss Elizabeth G. Horne of Boston, January 2.

WILLIAM CURTIS GIBSON, M.D., to Miss Helen Borum, both of Suffolk, Va., January 9.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SURGODINE

Report of the Council on Pharmacy and Chemistry

The following report submitted by a referee was adopted by the Council and authorized for publication.

W. A. PUCKNER, Secretary.

Surgodine (Sharp and Dohme, Baltimore, Md.), according to an advertising pamphlet, is a solution of 2¼ per cent. of iodin in alcohol, containing no alkaline iodid, but miscible with water in all proportions. The A. M. A. Chemical Laboratory reports that Surgodine is an alcoholic liquid (containing 91.8 per cent. alcohol by volume) containing free iodin, combined iodin and free acid, probably hydrogen iodid (hydriodic acid). Quantitative estimations gave 2.51 gm. free iodin per 100 c.c. and 1.78 gm. combined iodin (the greater part apparently was present as hydrogen iodid).

It is therefore similar to several other iodin preparations already considered by the Council. Like these, it is essentially similar to the official tincture of iodin, except that it is considerably weaker, and instead of potassium iodid it presumably contains hydrogen iodid and probably ethyl iodid to render the iodin water-soluble. Its composition, however, is secret.

There would be no objection to the use of ethyl iodid or hydrogen iodid, except perhaps the acidity of the latter, as a solvent agent rather than of potassium iodid. But neither is there any important advantage, and these preparations would have to be considered as unessential modifications of official preparations, and therefore ineligible for New and Non-official Remedies.

The attempt to make these modifications commercially profitable, however, seems inevitably to lead to exaggerations and misstatements. In an advertising pamphlet the following claims for Surgodine are unsupported by any evidence:

"But from the surgical viewpoint the addition of this potassium salt is most objectionable because when such solutions as the official tincture are used locally in the antiseptic treatment of open and often infected wounds, the Potassium Iodide acts as an irritant to the wound and therefore produces a localized irritation which is not only objectionable from the surgical standpoint but also materially lessens the antiseptic power of the Iodine itself."

"It has been demonstrated repeatedly that Iodine without the admixture of any alkaline iodide is much more efficient as a surgical antiseptic than any iodine solution that contains such an addition."

"Iodine does not produce 'iodism' as quickly as the alkaline iodides do because it is eliminated more quickly and more perfectly than the alkaline iodides."

The next statement intimates that iodin taken by mouth enters the intestinal tract unchanged and is there free to combine with various gases:

"Iodine in the presence of phosphorated or sulphurated gases in the gastro-intestinal tract unites with their hydrogen and thus breaks up these noxious compounds."

This is certainly untrue at least for ordinary doses.

It is recommended that Surgodine be held inadmissible to New and Nonofficial Remedies because its composition is secret (Rule 1); because the therapeutic claims made for it are exaggerated and unwarranted (Rule 6); and because it is an unessential modification of the official tincture of iodin (Rule 10).

[EDITORIAL COMMENT.—Surgodine is a good illustration of the economic waste inseparable from most proprietary medicines. A hospital pharmacist writes that whereas his hospital obtains tincture of iodin at less than 82 cents a pint, Surgodine costs $2.13 a pint. This means that while the free-iodin strength of Surgodine is only about one-third that of the official tincture, its price is between two and three times as high. Surgodine is being advertised in the following medical journals:

Illinois Medical Journal
International Journal of Surgery
Military Surgeon
Southern Medical Journal
Maryland Medical Journal
Chicago Medical Recorder
New Orleans Medical and Surgical Journal]

DIONOL

"Dionol" is advertised to physicians by the Dionol Company of Detroit. If one takes the word of the manufacturers, the therapeutic possibilities of Dionol are apparently limited only by the blue sky. Even the company admits that "the unprecedented range of action" of this marvel "may come as a surprise." A glance over the published "case reports" confirms the inference. From "Bed Sores," "Bubo," "Catarrh" and "Circumcision" through "Croup," "Deafness," "Dysmenorrhea" and "Eczema," including "Endometritis," "Erysipelas," "Gastritis" and "Hemorrhoids," not omitting "Osteomyelitis," "Otitis Media," "Pneumonia" and "Ptomaine Poisoning," down through the pathologic alphabet to "Quinsy," "Sciatica," "Spinal Curvature," "Varicose Veins," and "Whooping Cough" one concludes that here at last is a catholicon indeed.

What is Dionol? First it should be said that the preparation comes in two forms: as an ointment and as an emulsion. The ointment, so declare the manufacturers, "is *always* required"; the emulsion may be used "as an auxillary treatment." The Dionol "literature" when stripped of the verbal camouflage with which it abounds may be said to propound the following theories and propositions: First, that the nerves of the body are electric conductors insulated from the surrounding tissues by the nerve sheaths; second, that inflammation breaks down the insulation with the resultant escape of the current and an interference with the normal metabolic action of the cells; third, that Dionol, when applied to the body, penetrates the tissues, "coating the cells and with them the nerve sheaths with a nonconducting layer which is sufficient to insulate the nerve sheaths and stop the leak."

So much for the theory on which the alleged action of Dionol is based. Dionol itself is a sort of glorified petrolatum. Not, of course, that the manufacturers describe it in any such crude and understandable language. According to the company, Dionol is "composed of pure hydrocarbons, especially selected with regard to specific gravity, viscosity and other necessary physical properties" which has been "perfectly *dionized* by our special scientific process under the Baines method." It appears, from further reading, that ordinary petrolatum will not "turn the trick"; presumably because it does not overcome the human short circuits which the Dionol company declare are always present in inflammation. When, however, the petrolatum has been subjected to the "Baines Method" it achieves, it seems, an esoteric value that puts to shame its plebeian origin.

The whole thing is very simple. To those physicians that like this sort of thing this preparation should make a strong appeal.

Public Health Service.—According to the *Bulletin* of the state board of health for October, North Dakota has had a Public Health Service which has been in existence for three months. Cases of tuberculosis, typhoid fever, gonorrhea, syphilis and diphtheria, as diagnosed by the four public laboratories of the state, are being reported to the state board of health. These reports are used by the registrar to check up the morbidity reports returned by physicians and health officers. The information obtained will be used in enforcing the provision of the law requiring physicians to report such cases. These reports are also to be used by the epidemiologist in keeping track of contagious and infectious diseases. The Public Health Service has employed a registered nurse who is to be a field investigator in tuberculosis and in school sanitation. The services of this nurse will be first given to cities and towns making the best showing in the sale of Red Cross Christmas seals, under an arrangement with the Anti-Tuberculosis Association.

Correspondence

REPORTING OF ACCIDENTS FROM LOCAL ANESTHETICS

To the Editor:—The Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association has undertaken a study of the accidents following the clinical use of local anesthetics, especially those following ordinary therapeutic doses. It is hoped that this study may lead to a better understanding of the cause of such accidents, and consequently to methods of avoiding them, or, at least, of treating them successfully when they occur.

It is becoming apparent that several of the local anesthetics, if not all of those in general use, are prone to cause death or symptoms of severe poisoning in a small percentage of those cases in which the dose used has been hitherto considered quite safe.

The infrequent occurrence of these accidents and their production by relatively small doses point to a peculiar hypersensitiveness on the part of those in whom the accidents occur. The data necessary for a study of these accidents are at present wholly insufficient, especially since the symptoms described in most of the cases are quite different from those commonly observed in animals even after the administration of toxic, but not fatal, doses.

Such accidents are seldom reported in detail in the medical literature, partly because physicians and dentists fear that they may be held to blame should they report them, partly, perhaps, because they have failed to appreciate the importance of the matter from the standpoint of the protection of the public.

It is evident that a broader view should prevail, and that physicians should be informed regarding the conditions under which such accidents occur in order that they may be avoided. It is also evident that the best protection against such unjust accusations, and the best means of preventing such accidents consist in the publication of careful detailed records when they have occurred, with the attending circumstances. These should be reported in the medical or dental journals when possible; but when, for any reason, this seems undesirable, a confidential report may be filed with Dr. R. A. Hatcher, 414 East Twenty-Sixth Street, New York City, who has been appointed by the committee to collect this information.

If desired, such reports will be considered strictly confidential so far as the name of the patient and that of the medical attendant are concerned, and such information will be used solely as a means of studying the problem of toxicity of this class of agents, unless permission is given to use the name.

All available facts, both public and private, should be included in these reports, but the following data are especially to be desired in those cases in which more detailed reports cannot be made:

The age, sex, and general history of the patient should be given in as great detail as possible. The state of the nervous system appears to be of especial importance. The dosage employed should be stated as accurately as possible; also the concentration of the solution employed, the site of the injection (whether intramuscular, perineural or strictly subcutaneous), and whether applied to the mouth, nose, or other part of the body. The possibility of an injection having been made into a small vein during intramuscular injection or into the gums should be considered. In such cases the action begins almost at once, that is, within a few seconds.

The previous condition of the heart and respiration should be reported if possible; and, of course, the effects of the drug on the heart and respiration, as well as the duration of the symptoms, should be recorded. If antidotes are employed, their nature and dosage should be stated, together with the character and time of appearance of the effects induced by the antidotes. It is important to state whether antidotes were administered orally, or by subcutaneous, intramuscular or intravenous injection, and the concentration in which such antidotes were used.

While such detailed information, together with any other available data, are desirable, it is not to be understood that the inability to supply such details should prevent the publication of reports of poisoning, however meager the data, so long as accuracy is observed.

The committee urges on all anesthetists, surgeons, physicians and dentists the making of such reports as a public duty; it asks that they read this appeal with especial attention of the character of observations desired.

Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association.

TORALD SOLLMANN, Chairman,
R. A. HATCHER, Special Referee.

THE CONTROL OF SCARLET FEVER BY ROUTINE CULTURE

To the Editor:—During my service in the contagious wards at the City and County Hospital, St. Paul, in the winter of 1916-1917, I attempted routine control of the scarlet fever cases by cultures from the nose and throat. A method similar to that in common use for the control of diphtheria was employed, except that the streptococcus was considered instead of the Klebs-Loeffler bacillus. So far as I knew at the time, this had never been attempted as a routine. The attempt at control was made with the consent of the local bureau of health.

Routine cultures on admission to the scarlet fever wards had long been an established procedure on account of the frequency with which Klebs-Loeffler bacilli are found in the throats of scarlatinal patients. This varies from 5 to 30 per cent., according to the observer, and was about 10 per cent. in our cases. The routine examination was enlarged to cover the presence of streptococci both by direct smear and by incubated specimen. They were present on admission in every instance.

No special treatment of the nasopharynx was attempted. General treatment was carried on as usual. Symptomatic treatment was given in the mild cases, and the free use of fluids was largely relied on. Water was given freely to drink in septic cases, and glucose was used by rectum for nourishment. Opiates were administered when indicated.

Routine cultures were taken every week in the watch for possibilities of cross-infection. When convalescence was well established and the patient was up and about, the routine cultures were carefully studied for the presence of streptococci. If they were absent, the culture was repeated and the patient discharged after two successive streptococcus-free cultures from the nose and throat. No attention was paid to the peeling. Frequently the body peeling was about complete by the time the cultures were free from streptococci. The return cases were, if anything, fewer by this method than under the old method based on peeling.

There was no marked prevalence of scarlet fever in the city that winter, and the series of cases was small. No definite results can be quoted from the method till a larger number of cases can be observed and compared with former records. This I hope to carry on in my service next winter.

CHARLES E. SMITH, JR., M.D., St. Paul.
Assistant Secretary, Minnesota State Board of Health.

MONOTONY OF SANATORIUM DIETS

To the Editor:—In THE JOURNAL, Dec. 22, 1917, p. 2102, is an item dealing with the monotony of sanatorium diets that concerns every sanatorium superintendent who believes that the methods of his institution reduce the monotony of meals to the minimum.

In the sanatorium of the Department of Health of the City of New York, food is ranked second only to medicine in the treatment of the case. Plain, wholesome food, approximating as nearly as possible home cooking in its preparation, is served. The menu is arranged to cover a period of four weeks, thus avoiding the weekly repetition of the same meals

on regular days. The patient cannot prognosticate the roast beef day, the corned beef day, the lamb stew day, etc., as is the case in so many boarding houses. No restrictions are placed on the patients as to the number of helpings they shall have, and scientific investigation of the value of the food is confined to the laboratories. When patients participate in scientific tinkering with the bill of fare, and are constantly reminded of the necessity of eating just the right amount of food for their weight and disease, they find it, although mentally predigested, robbed of its satisfying character because they have thought about it so much.

The monotony of sanatorium diets is a question easily solved, the sanatorium frame of mind is just as easily established, and plain wholesome food partaken of by cheerful hungry people without a thought of what it costs or of what it does except to satisfy, served intelligently, will never become monotonous, Feed food for its food value, but feed food, not calories.

ROBERT J. WILSON, M.D., New York.
Director, Bureau of Hospitals, Department of Health.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TEST OF VISUAL ACUTENESS

To the Editor:—Give all the facts you have about Dr. W. O. Coffee, with reference to visual acuteness when the patient claims that both eyes are equally deficient, and when vision is 20/80? I am familiar with the visual tests by means of prisms and colored lenses when one eye is good or when both eyes are below normal, but one materially lower than the other. C. A. G.

ANSWER.—The detection of this form of malingering is much more difficult than when the pretended high degree of amblyopia is confined to one eye.

A careful ophthalmoscopic and skiascopic examination should first be made in order to eliminate any causal fundus or refraction condition. It has been seen that this class of malingerers talk this thing over among themselves, and they pass the word along that they must not be able to read, for instance, any lower down than the third row from the top, on the test card. The following plan has been successfully employed in some of these cases: The man says he can read no farther down than the third line from the top—20/80. Then have a mirror hung where the letters are, and a card with letters of exactly the same size on the wall just behind the man, but printed backward, and with a strong light thrown on them. Now explain to the man that with this better light on the letters, he can by looking in the mirror read possibly one or two letters in a lower line. The man's mentality is usually not keen enough to detect the trick, so that if he still reads the same line he did before, his visual acuity is double the amount he pretended it was.

A device adopted by Roche (*Ophthalmoscope*, September, 1911) consists in the employment of a hundred cardboard squares on each one of which a Snellen test letter is pasted. Ten letters of the same size are made, thus having ten squares for each line of test type. The squares are all mixed up together promiscuously and exposed to the patient at a distance of 5 meters; he is asked to name those letters he can recognize, which are put aside and compared with the ones which were said not to be recognizable. Having no means of comparing one letter with another, the simulator finds it extremely difficult to deceive the examiner and be consistent in his answers.

ALLOWABLE DEDUCTIONS ON INCOME TAX RETURNS

To the Editor:—What information can you give me for making out my income tax report? 1. I am compelled to use an automobile. This is an absolutely necessary expense, so far as I am concerned, in connection with my work. May I deduct this expense? 2. Likewise, I am compelled to have an office in town, separate from my residence. May I deduct the expense connected with this office?

S. W. H.

ANSWER.—1. The Treasury Department has ruled that when an automobile is used by a physician in his practice exclusively, the entire expense and upkeep can be deducted as expenses in his profession. If the automobile is used both in his profession and for pleasure, that proportion only of the expense and upkeep of the automobile properly chargeable to his professional use can be deducted, and the proportion chargeable to use of the car as a pleasure vehicle cannot be deducted.

2. The department has ruled on this subject that expenses of an office of a physician maintained separately from his residence, including amounts paid to employees for care of the office, telephone service, etc., can be deducted as expense in his profession. If a physician has his office in his home, setting aside a separate room or rooms for that purpose: (*a*) If he or his wife owns the home, he may deduct as a necessary expense in his profession the reasonable rental value of such room or rooms occupied by him solely in connection with his profession. (*b*) If he rents his home, he may deduct such proportionate part of the entire rent paid as the space occupied by him exclusively in connection with his profession bears to the entire premises rented.

THE PERSIMMON

To the Editor:—Can you inform me as to what acid is found in the persimmon and of what food value that fruit is?

EARL H. CONNELL, M.D., Oakland, Calif.

ANSWER.—The chief acids of the persimmon are malic acid and tannic acid, the latter being more readily available in the unripe state. The food value of the edible portion resides mainly in the carbohydrate content, this being higher in the American than in the Japanese persimmon. In the Japanese persimmon, as purchased, each 500 gm. should yield approximately 270 calories.

COFFEE TURNS FROM MAIL-ORDER TO ITINERANT QUACKERY

To the Editor:—Give all the facts you have about Dr. W. O. Coffee who "cures" everything, especially cross eyes! He is widely advertised here.

M—— O——, M.D., Moline, Ill.

ANSWER.—W. O. Coffee of Des Moines, Iowa, used to do a flourishing mail-order "eye cure" business. Then his fakery was shown up by Mr. Adams in the "Great American Fraud" series and the business of repairing eyes by mail waned. Later (Oct. 19, 1915) appeared items in Des Moines newspapers recording the fact that Coffee had filed a petition in voluntary bankruptcy. His heaviest creditor, according to the report, was Arthur Capper, governor of Kansas and owner of the Topeka *Capital*, which had an advertising claim aggregating many hundreds of dollars. Also, it was mentioned, Coffee was owing over $800 in back rent on his "palatial suite" of offices. "Although the doctor owes over $15,000," continued the newspaper report, "he has not a cent due him from outstanding accounts. He did a cash business and required all payments in advance." Mail-order quackery failing, Coffee turned his talents to the itinerant field. From advertisements in our files it seems that Coffee operates chiefly in Illinois, and apparently finds Illinois a lush field for his endeavors.

DEATH FROM ELECTRIC SHOCK—STOVAINE AND ITS USE

To the Editor:—1. What are the distinctive outward signs of death from electricity in man; for example, accidental or intentional contact with high voltage wires? 2. What is stovaine chemically, and how is it employed?

C. P. FRISCHBIER, M.D., Gilmore, Ida.

ANSWER.—1. The pathologic effects of death from electric shock usually consist of deep burns in the skin at the point of contact, often destroying the tissue down to the bone. A similar charred wound is sometimes found at the point where the current leaves the body. In the internal organs little is to be observed aside from small hemorrhages and irregular streaks of contraction and hyaline change in the muscles. 2. Stovaine is described in "New and Nonofficial Remedies," 1917, page 34, thus: Benzoyl-dimethylaminomethylpropanol hydrochloride. — $CH_3.CH_3.C(C_2H_5COO)(CH_3)CH_2N(CH_3)_2.HCl$.—The hydrochloride of 2-benzoxy-2-methyl-1-dimethylamino butane. Employed as a local anesthetic, it is used in from 5 to 10 per cent. solution when applied to the mucous membrane; hypodermically, in 0.75 to 1 per cent. solution.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Juneau, March 5. Sec., Dr. L. P. Dawes.
CALIFORNIA: Los Angeles, Feb. 18. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.
CONNECTICUT: New Haven, March 12-13. Sec., Dr. Charles A. Tuttle, New Haven.
CONNECTICUT (H): New Haven, March 12. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.
ILLINOIS: Springfield, Feb. 6-7. Supt. F. C. Dodds, Springfield.
IOWA: Des Moines, Feb. 5-7. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
KANSAS: Topeka, Feb. 12. Sec., Dr. H. A. Dykes, Lebanon.
MAINE: Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
MASSACHUSETTS: Boston, March 12-14. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
NEW YORK: Albany, Buffalo, New York City and Syracuse, Jan. 29-Feb. 1. Sec., Dr. W. J. Denno, Education Bldg., Albany.
VERMONT: Burlington, Feb. 12. Sec., Dr. W. Scott Nay, Underhill.
WYOMING: Laramie, Feb. 6-8. Sec., Dr. H. E. McCallum, Laramie.

Kentucky June Examination

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, June 19-21, 1917. The examination covered 10 subjects and included 100 questions. An average of 70 per cent., with not less than 60 per cent. in any branch, was required to pass. Of the 71 candidates examined, 55, including 2 osteopaths, passed, and 16 failed, including 1 nongraduate. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1917)	81, 86
University of Louisville (1909) 70; (1916) 80; (1917) 74, 75, 78, 79, 79, 79, 80, 81, 83, 81, 81, 82, 82, 82, 83, 83, 83, 83, 83, 84, 84, 84, 85, 85, 85, 86, 87, 88, 88, 90.		
Eclectic Medical College	(1917)	75
Lincoln Memorial University	(1917)	83
Meharry Medical College (1916) 75, 88, (1917) *, 72, 73, 74, 74, 76, 78, 79, 81.		
University of Tennessee	(1917)	88
Vanderbilt University (1915) 74; (1916) 75, 80; (1917) 78, 83, 85.		

FAILED		
University of Louisville	(1910)	43; (1912) 57, 63; (1917) 74, 78
Lincoln Memorial University	(1913)	42; (1917) 73, 78
Meharry Medical College (1912) 67; (1914) 72; (1916) 67; (1917) 67, 69, 73, 75.		

*No grade given.

Iowa October Examination

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Oct. 9-11, 1917. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 11 candidates examined, 10 passed and 1 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Loyola University	(1917)	81.4
Rush Medical College	(1902) 86.5; (1917)	88.5
University of Illinois	(1916)	79.7
Indiana University	(1912)	91
University of Louisville	(1917)	78
John A. Creighton Medical College	(1917)	75.4
University and Bellevue Hosp. Med. College	(1916)	84.2
Jefferson Medical College of Philadelphia	(1913)	86.7
University of Toronto	(1908)	86.7

FAILED		
College of Physicians and Surgeons, Chicago	(1902)	70.5

Oklahoma October Examination

Dr. James J. Williams, secretary of the Oklahoma State Board of Medical Examiners, reports the oral and written examination held at Oklahoma City, Oct. 9-10, 1917. The examination covered 11 subjects and included 100 questions. An average of 70 per cent. was required to pass. Eleven candidates were examined, including 2 osteopaths, all of whom passed. Sixteen candidates were licensed through reciprocity, and 5 candidates were granted reregistration certificates. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Rush Medical College	(1916)	84
University of Illinois	(1899)	84
University of Louisville	(1911)	76
Tulane University of Louisiana	(1914)	87
St. Louis College of Physicians and Surgeons	(1888)	77
University of Oklahoma	(1916)	80, 85
University of Pennsylvania	(1910)	82
Memphis Hospital Medical College	(1913)	71

LICENSED THROUGH RECIPROCITY		
College	Year Grad.	Reciprocity with
University of Arkansas	(1914)	Arkansas
Howard University	(1915)	Missouri
Physio-Medical College of Indiana	(1896)	Texas
Kentucky University	(1904)	Indiana
University of Maryland	(1879)	Arkansas
Beaumont Hospital Medical College	(1887)	Missouri
St. Louis College of Physicians and Surgeons	(1897)	New Mexico
University Medical College of Kansas City	(1912)	Kansas
University of Missouri	(1904)	Missouri
John A. Creighton Medical College	(1915.2)	Nebraska
Pulte Medical College	(1893)	Kentucky
Memphis Hospital Medical College	(1893)	Texas
University of Tennessee	(1903)	Mississippi
Vanderbilt University	(1916)	Tennessee
Baylor University	(1915)	Texas

Delaware December Examination

Dr. H. W. Briggs, secretary of the Medical Council of Delaware, reports the practical and written examination held at Wilmington, Dec. 11-13, 1917. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Five candidates were examined, all of whom passed. One candidate was licensed through reciprocity. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
University of Maryland	(1917)	79.4, 79.5
Hahnemann Med. College and Hospital of Philadelphia	(1917)	87.4
University of Pennsylvania	(1917)	78.4, 81.6

LICENSED THROUGH RECIPROCITY		
College	Year Grad.	Reciprocity with
University of Pennsylvania	(1898)	Penna.

Iowa Reciprocity Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that 5 candidates were licensed through reciprocity at the meeting held Dec. 5, 1917. The following colleges were represented:

LICENSED THROUGH RECIPROCITY		
College	Year Grad.	Reciprocity with
Atlanta College of Physicians and Surgeons	(1912)	Georgia
Chicago College of Medicine and Surgery	(1916)	Wyoming
University of Nebraska	(1907)	Nebraska
Western Reserve University	(1897)	Ohio
University of Pittsburgh	(1910)	Penna.

Book Notices

PROBLEMS OF SUBNORMALITY. By J. E. Wallace Wallin, Director of Psycho-Educational Clinic, Board of Education, St. Louis. With an Introduction by John W. Withers, Ph.D., Superintendent of Public Schools in the City of St. Louis. Cloth. Price, $3. Pp. 485. Yonkers-on-Hudson: World Book Company, 1917.

This book outlines a plan for the organization of various types of special and ungraded classes to meet the needs of different types of exceptional children. It also considers the social, civic, industrial, criminologic and eugenic questions affecting different types of abnormal children, the feeble-minded, backward, epileptic, blind, deaf, speech defective, crippled and psychopathic. The book may be divided into two portions. In the first, the changing attitudes toward the subnormal are considered, with a history of the care, training and study of the feebleminded and backward children, and a review of the present methods of determining subnormality, or the problem of diagnosis. In the second, there is a collection of addresses that have been delivered before various societies.

The author's point of view relative to the problems of subnormality is clear, concise and refreshing. He emphasizes the fact that it is evident that no mere Binet tester can fulfil the functions of a consulting psychologist in a school system or in a court. The fundamental weakness in the organization of special classes in the public schools, he concludes, has been and largely continues to be the inadequate provi-

sions afforded by these schools for the correct diagnosis of varying degrees and types of mental retardation. Although he brings out clearly the inadequacy of present methods wherein untrained psychologists purport themselves to be clinical diagnosticians, he attributes to the function of well clinically trained psychologists too great an importance in the assumption of their ability to make differential diagnoses between psychoses and various psychic adolescent deficiencies. His plea for the collaboration of the neurologist or physician with neurologic and psychiatric training and a trained psychologist in the care of these conditions is timely and logical.

The chapter devoted to the problem of diagnosis includes a detailed summary of a considerable number of American studies of various mentally abnormal classes of juveniles and adults, and from these records he formulates conclusions relative to the standardization of diagnosis and delimitation of the term "feeblemindedness." The chapter on general principles and facts to be recognized in the organization of work for mentally and pedagogically retarded children contains the digest of a questionnaire that was sent to the supervisors or superintendents in charge of special classes in public schools in sixteen of the larger cities in the country, and affords data of great value to all who are interested in the problem of subnormality. What the author says concerning epilepsy will meet considerable resistance in the mind of the physician. Although he includes in his outline of the pathogenesis of epilepsy many of the factors that are considered in standard works, his grouping is rather objectionable in that, along with theories propounded by men recognized as competent observers, he includes the undigested and uncertified proposals of theorists. His consideration of the treatment of epilepsy is entirely without reason, in that he relegates to use only in emergencies such drugs as the bromids. The book as a whole is an interesting presentation of a difficult subject, and is one that should be of considerable value to the psychologist, physician, penologist, social worker and pedagogue.

A HANDBOOK ON ANTISEPTICS. By Henry Drysdale Dakin, D.Sc., F.I.C., F.R.S., and Edward Kellogg Dunham, M.D., Emeritus Professor of Pathology, University and Bellevue Hospital Medical College. Cloth. Price, $1.25. Pp. 129. New York: The Macmillan Company, 1917.

This little book presents in a convenient form the methods of preparation and use of antiseptics that have received endorsement by military surgeons during the present war. While the phenolic group, the heavy metals, the dyes and other agents, such as hydrogen peroxid, iodin, boric acid and alcohol, are discussed, the members of the chlorin group, such as salts of hypochlorous acid and the chloramins, on which the authors have done a large amount of research work, have, as might be expected, received the preponderance of attention; and a perusal of the book leaves one with the impression that chlorin is king of disinfectants, which it well might be. Should the reader look for a discussion of the practical details of use of these agents by the Carrel method, he would be disappointed, as the authors have not taken up surgical technic. In the chapter devoted to methods of testing antiseptics, two important principles, in particular, that are frequently disregarded, are strongly emphasized. The necessity of choosing methods of testing "in some degree in conformity with the mode of use of the substance and under conditions not too remote from those under which it is proposed to employ it" is properly considered of fundamental importance. Thus, while the determination of the Rideal-Walker phenol coefficient yields valuable information regarding the relative value of disinfectants in fairly homogeneous aqueous mediums, it is not suitable for the determination of the relative value of wound disinfectants or of agents that are to be injected into the blood stream. Another important point in the technic of evaluation of disinfectants is to add the agent last, after the medium has been inoculated. Otherwise labile agents, such as chlorin, will have expended their chemical energy on the medium, and much of its activity will be destroyed. Other topics taken up are disinfection of carriers, disinfection of water and disinfection of hospital ships with electrolytic hypochlorite.

Social Medicine, Medical Economics and Miscellany

COOPERATION OF PHYSICIANS AND INSURANCE COMPANIES IN THE PROMOTION OF PUBLIC HEALTH

WILLIAM MUHLBERG, M.D.
CINCINNATI

Insurance companies are becoming actively interested in problems for improving public health, and as their experience grows, they are beginning to appreciate not only the economic and social importance of such a campaign, but the benefits they themselves are likely to derive from the saving resulting from a lower rate of mortality among their policyholders.

It is estimated that the insurance carried by policyholders in the United States, on the ordinary plans, amounts to about $22,000,000,000, distributed among approximately 5,000,000 risks. Most of this, of course, is carried on men aged 20 or more. Granting that there are about 30,000,000 males in the United States past the age of 20, and that these, for the most part, are heads of families consisting of four members each, it is quite possible for insurance companies to reach about one home out of every five or six in the community, and thereby instruct in proper health measures, directly or indirectly, almost 20,000,000 persons, or about 20 per cent. of the population. In addition, some 35,000,000 industrial policies are carried, but much of this is on women and children.

From the financial standpoint, the insurance companies have much to gain. It is estimated that the average amount carried by a policyholder in most old line companies doing an ordinary standard business is about $3,000. Let us assume that through some good advice to the policyholder, the company succeeds in prolonging his life even one year. The saving to the company will be approximately $240.

Furthermore, the insurance company has very little difficulty in approaching its policyholder. Most companies issue bulletins that are mailed annually or semiannually to their members. The policyholder must be written to every year in connection with his premium notice. Most important of all, the company, if it is perfectly frank and ingenuous in its statements, can convince the policyholder that it is to the selfish interest of them both to heed any advice given, thereby breaking down one of the barriers that generally obstruct a clear understanding, namely, the suspicion on the part of the recipient that the donor may have some hidden motive.

The methods employed by insurance companies offering this service vary in detail. In a general way, however, they may be described as follows:

1. The policyholder is circularized and advised especially with reference to the prophylaxis of typhoid, malaria and tuberculosis.

2. Health examinations are held at certain intervals, preferably annually. The policyholder is permitted, without expense to himself, either to undergo a full examination by a physician selected by the company, or to submit annually a sample of urine for free examination, with a statement of illnesses and condition of health during the past year.

3. Advice is given to rejected applicants for insurance. This is usually some circular form of pamphlet.

4. Advice is given to persons to whom policies have just been issued. In the conduct of the business of medical selection, it is expedient to issue insurance to risks who are slightly impaired. Companies doing a substandard business issue to decidedly impaired risks.

5. Finally, it has been proposed that insurance companies should take a direct financial interest in supporting health departments, when a community is too small or too poor to maintain one. Also, they should establish, in various sections of the country, bureaus whose function shall be the education of the people in the prevention of diseases prevalent in the respective localities, such as malaria and hookworm in the southern states. This plan, however, is still in embryo. It

is further proposed that insurance companies establish sanatoriums for the treatment of their policyholders, as is done by certain fraternal lodge organizations.

All statements made by the policyholder are strictly confidential. In no case is the agent or any other company advised of their nature, nor do any statements of the policyholder or any findings influence the company in the consideration of any subsequent application that the policyholder may submit to the company. On request from the attending physician, a copy of the company's urinalysis or other findings is cheerfully sent. It is absolutely essential that all these precautions be taken, and that the work be done in absolute good faith, so as to instil confidence into the policyholder.

Whatever method for improving the public health is used, some benefit will be derived. But the practical handling of the situation demands considerable tact, patience and time, and a most wholehearted cooperation between the practitioner in the field and the insurance companies.

It is on this phase of the work that I particularly wish to lay stress. For the convenience of this discussion, prophylaxis may be divided into two groups: the prophylaxis of such diseases as tuberculosis, typhoid and malaria, and the prophylaxis that aims to diagnose and cure a disease in its earliest incipience or to prevent it in persons especially predisposed.

The prophylaxis governing typhoid fever, etc., can be best handled by the method of the propagandist; and that phase of activity on the part of the insurance company does not demand, except in a general way, the active cooperation of the medical practitioner. But the arrest of such processes as incipient diabetes, Bright's disease, tuberculosis, or the handling of mild obesity cases, anemia, etc., does. Unfortunately, it is just here that friction arises. The conflict is partly the fault of the medical directors and partly the outcome of a lack of clear understanding on the part of the practicing physician in handling these cases.

The insurance companies are constantly studying the effect of certain impairments of health or of family history on the longevity of their policyholders. The statistics have assumed respectable proportions. We know that a certain degree of overweight, or underweight, or a previous history of gallstones, or blood spitting, or rheumatism has a tendency to shorten life. These statistics are of great value in the selection of insurance risks, as well as to medical science; but, unfortunately, except for an occasional article published by insurance medical directors or actuaries, they have not been properly brought to the attention of the profession at large.

As a consequence, the average physician does not know that overweight, of even minor degrees, at certain ages, is a menace, and that this is also true for lightweight, and for persons giving past histories of pleurisy, spitting of blood, rheumatism, etc. Furthermore, even when the general practitioner has knowledge of these facts, his medical education and literature and textbooks impart very little practical knowledge that can be used in giving his patient the needed advice. It is most important that this phase of medical science be developed more extensively.

All too frequently, when an insurance company suggests to a policyholder that he consult his physician for reduction of his weight, the policyholder is told by the physician that his overweight is of no moment, and, ever suspicious, he scents some sharp practice on the part of the medical director. Nevertheless, the medical director knows from statistical information that the overweight is a menace and that the correction of it might add several years to the expectancy of the policyholder's life.

But the most discouraging experience is met in connection with urinalysis. A policyholder, let us say, submits a sample to his insurance company for analysis. This discloses the fact that there is a trace of albumin or sugar, or a few casts. He is referred to his physician, who fails to confirm the laboratory's findings. It is, of course, not unusual, as attested by the experience of handling applications for insurance, that albumin temporarily appears, as a result of very minor disturbances, such as overexertion and ordinary rhinitis. Nor, on the other hand, is it unusual for albumin, and especially sugar, to appear intermittently in the incipient stages of Bright's disease or diabetes. The physician, however, without regard for these facts, or without any attempt at explanation, states his findings and thereby promptly arouses the suspicion of his patient as to the honesty of the company's motives.

A little cooperation, a modicum of regard for the really honest motives of the insurance companies in offering this service to their policyholders, as well as a bit of tact, would do much to help all concerned in overcoming this difficulty.

It is the endeavor of the medical departments of insurance companies to help, in every legitimate way, the efforts of physicians in persuading their patients to seek advice early in the course of the disease; to discourage the taking of "patent medicines"; to have policyholders consult their physicians, not only in disease, but also in health; to encourage annual examination, if possible, for the purpose of discovering ailments in their incipiency; to overcome the popular fear of surgical operations, and to aid in the exposure of medical frauds, practices and "isms." The insurance company is in a strong position to help in these matters. The policyholder knows that the company is interested financially in his living out his expectancy, and that since the medical director receives no fee for his suggestions, his advice is probably disinterested. But all these efforts will prove worthless, if at the outset, there is instilled into the policyholder's mind the idea that the company's suggestions are either bad or unduly of the alarmist nature, or tinged with sharp practice.

Cooperation, therefore, is absolutely necessary, if good results are obtained. The medical director should keep in closer touch with the profession at large. He should make more accessible the results of medico-actuarial investigation and cooperate more fully with general practitioners and health officers in their many excellent endeavors. The physician, on the other hand, should become better acquainted with the health promotion work of insurance companies and be prepared to handle with greater skill the incipient diseases referred to him by medical directors.

And, just as it would be eminently unjust and unethical for a medical director to criticize the skill of the physician, when the two fail to agree either in treatment or diagnosis, so it is equally unethical for the practitioner to impugn the motives of the medical directors of insurance companies in their efforts for the public good.

Director and practitioner can help each other greatly if they remember that, though engaged in different fields of medical practice, their ideals, motives and ethical standards remain identical.

Report of the Surgeon-General of the Public Health Service

The Surgeon-General of the Public Health Service, under date of Oct. 6, 1917, submits his report for the fiscal year ending June 30, 1917, to the Treasury Department. It has just been published. The work has been administered during the past year by six assistant surgeon-generals in charge of the various divisions. The Surgeon-General points out that all of these divisions have cooperated one with another in the work. Following the declaration of war, the personnel and facilities of the service were made available to the military forces; numerous sanitary experts were detailed to the Army and Navy for special duty, and statistical information was supplied to Army and Navy officials. During the latter part of the year a large part of the force was occupied in surveys of the extracantonment zones and in industrial sanitation, cooperating in the supervision of the health of employees in industries related to the war. The Public Health Service gave its usual attention to special studies of outbreaks of infectious diseases in different sections of the country, to the study of pellagra, of mine sanitation, of health insurance, of public health organization and administration, of rural hygiene, of the pollution of streams, of the treatment of narcotic addiction, and of leprosy investigation; in fact, to all sorts of public health problems threatening the life of the people continually.

The Hygienic Laboratory, with its divisions of chemistry, pathology, pharmacology, zoology, etc., continued its investigations and research, and all of this material has been disseminated by personal interviews with health authorities, through the numerous publications of the department, through lectures, press service, exhibits and correspondence. A special appropriation of Congress has permitted the service to exercise greater control over the manufacture of biologic products during the past year.

The Department of Maritime Quarantine reports in detail numerous examinations of steamships and the sanitation of ports and the medical inspection of immigrants, protecting the country at every inlet against the bringing on of dangerous diseases.

The Department of Domestic Interstate Quarantine reports its extensive work in connection with the dangerous epidemic of poliomyelitis in New York and the East during the latter part of 1916, of the suppression of plague in New Orleans, including the examination of 77,071 rats, opossums, squirrels, rabbits, etc., out of 387,732 animals received at the laboratory. Rat proofing, trapping, etc., were carried out extensively; plague prevention operations were continued in California and Washington; Rocky Mountain spotted fever investigations were conducted in Montana, and measures for the prevention of the interstate spread of typhus fever continued in Texas, Colorado and Iowa.

A short section of the report deals with sanitary, educational and relief work in Alaska. There are numerous reports of investigations of water supplies and minor disease outbreaks. The Public Health Service was responsible also for sanitary inspection of government buildings in Washington. It created a government "safety first" train, and conducted the emergency hospital at the Panama Exposition. It arranged for vaccination of the general public against smallpox, typhoid and paratyphoid fever, and cooperated generally with all other important organizations throughout the country for the public health.

A large part of the report deals with sanitary reports and statistics outlining the extent of various infectious diseases during the period mentioned. Other sections describe the operation of the marine hospitals and relief, the personnel of the service and publications issued. A financial statement indicates the distribution of the appropriation made for the service.

In discussing the needs of the service, Surgeon-General Blue states that the question of making complete the national quarantine system by the acquisition of the few remaining stations not under federal control is considered sufficiently important to be classified as one of the most important needs of the Public Health Service. The return of troops and the resumption of commerce with European ports after the war, he believes, may well constitute a serious menace to the health of this country, to guard against which the control of quarantine procedure at all ports should be in the hands of the federal government. He pleads again for additional commissioned officers as the need of additional trained men has been felt at all times during the past few years, recent legislation having added materially to the duties devolving on the Public Health Service. The Surgeon-General also discusses the proposed legislation for a Sanitary Reserve Corps of the Public Health Service which passed the Senate, Jan. 18, 1917, and which was referred in the House of Representatives to the Committee on Interstate and Foreign Commerce, which committee, Aug. 30, 1917, reported a substitute measure. It is believed that through the establishment of such an organization, a strictly organized and efficient force for the protection of the public health could be maintained under the supervision of the federal government at a comparatively small expense. Finally, Surgeon-General Blue points out that additional funds are needed, particularly for the purpose of securing better and more complete information as to the prevalence of diseases in this country, and to arrange for more printing, since there is no other way in which the federal health agency can be of service to the public at large than by the publication and dissemination of information.

Medicolegal

Performing Unwarranted Partial Prostatectomy

(Theodore vs. Ellis (La.), 75 So. R. 655)

The Supreme Court of Louisiana says that two surgical operations were performed on the plaintiff by the defendant at the latter's sanatorium. The first consisted in a suprapubic opening of the bladder for the purpose of completely emptying and washing it, and the second, in the removal of the left lobe of the prostate gland. The plaintiff, aged 36 years, an immigrant from Greece, had been troubled with escape of urine during sleep, for which he had been treated by several different physicians. In his statement that the defendant told him that an operation would cure him entirely, he was corroborated by a friend and compatriot, admittedly a truthful man; but the defendant testified that he made no such statement, and could not have made it, as such a thing would have been unethical—that "no doctor, unless he is a thoroughbred quack, would make any such statement to a patient under such circumstances, and especially before he has completed his examination." The court agrees in this view of the matter; a physician of the standing of the defendant would hardly make such a representation or promise. The court is satisfied that the two witnesses understood as they testified, but that they did so through a misconstruction of what was really said. If the condition of the plaintiff's bladder be assumed to have been as serious as the defendant described it to have been, the court must conclude from the testimony of the physicians who testified in the case that the defendant was justified in resorting to the first operation. But the court fails to find anywhere in the record, in fact, even in the defendant's own testimony, any justification for the second operation.

It stood to reason that the inflammation of these parts had a cause, and it stands to reason that, before proceeding to operate, it was the duty of the defendant to seek for this cause and ascertain whether it would not yield to therapeutic, or prophylactic, treatment. The testimony of experts ought not to be necessary for establishing that before a man's prostate gland or any part of it is cut out an attempt should be first made to ascertain whether the trouble will not yield to the ordinary methods of treatment whenever the circumstances are such as to allow of it. The reason given by the defendant why he operated was that thereby the urethra would be lowered, and a more complete emptying of the bladder be secured. But this result could have been arrived at by reducing the enlargement by the ordinary methods. In order to find the defendant liable under the rule governing the liability of physicians and surgeons for malpractice, the court must conclude from the circumstances of the case that he did not exercise due care and use his best judgment, and in view of the testimony it cannot escape that conclusion. There was no urgent necessity for an operation; there was full opportunity to try first the course which if successful would have left the plaintiff whole, and not subject him to the danger and suffering of this operation. "Judging defendant by ourselves, we are sure" that in the place of plaintiff he would have unhesitatingly preferred to try first the therapeutic treatment. Resorting first to the operation was not a mere error of judgment, for which a physician is not responsible, but was dealing lightly with a situation of the utmost gravity to the plaintiff. The plaintiff denied that he consented to the operation; but granting that he did, it was merely acceding to what the defendant told him was the proper course to pursue, whereas it is found that that course was not the proper one, and that the defendant knew it, or should have known it. Besides, the defendant did not pretend to have explained that the object was merely to lower the floor of the bladder, and certainly did not explain that the same result might perhaps be accomplished without an operation. Especially is the foregoing true in view of the fact that the defendant knew that the cause of the plaintiff's trouble was syphilis, and that the plaintiff had not yet had the benefit of a trial of the salvarsan remedy, and knew that the plaintiff

was tabetic, and therefore knew, or should have known, that a surgical operation should be avoided if possible.

The court fixes the plaintiff's damages at $2,000, and allows the defendant $75 for the first operation, but nothing for the second one.

Partial Loss of Sight in One Eye by Physician

(Murray vs. Aetna Life Insurance Co. (U. S.), 243 Fed. R. 285)

The United States District Court, District of Montana, in granting the defendant insurance company a new trial, after a verdict had been rendered for the plaintiff, a physician, holds that, in a trial on a policy pending for payment, among other things, for "loss of entire sight of one eye, if irrevocably lost," as the result of and within ninety days from accident, there was no error in an instruction to the jury that, though the injured eye could "distinguish light from darkness, or perceive objects temporarily, for brief intervals," yet, if "all useful and practical sight was irrevocably lost," it was within the policy and the plaintiff was entitled to recover on the policy. The court says it is believed the instruction is the law. The indemnity is virtually for the loss of the benefit of sight or vision. The latter may be defined as the ability to perceive, distinguish and recognize objects, and the former as satisfaction of will, need or pleasure. If this ability is so far destroyed that what remains will not to practical and useful extent confer any of this benefit, entire sight, within the construction of analogous terms in insurance law, is lost. So would it be in popular phrase or sense. The interpretation must be reasonable and relative, not literal. The ability to perceive light and objects, but no ability to distinguish and recognize objects, is not sight, but blindness. So would it be, through there were intermittent flashes of the latter ability. To no practical or useful extent would it serve the will, need or pleasure. But it is also believed that the evidence in this case was insufficient to sustain a finding or verdict that of his injured eye the plaintiff had lost the entire sight as herein defined. The conclusions repeatedly testified to were that the plaintiff could normally see objects but a "short time," and then vision faded out "in a very much shorter time," or "longer," dependent on his physical condition; that he could not read, distinguish letters, "for any amount of time" . . . "not able to use the left eye to any advantage," and the like. He had between a fourth and a half of the former vision of the eye, a substantial part, which in respect to many needs and pleasures would render him practical and useful service, doubtless greater in a life of inactivity and leisure than in one active and professional. But it was loss of sight as a man, and not as a physician, that this term of the policy applied to.

Permitted to Contract for Preparing to Give Expert Testimony

(Birch vs. Sees (N. Y.), 165 N. Y. Supp. 846)

The Supreme Court of New York, Appellate Division, Second Department, says that it must take it as established by the verdict for $500 rendered in favor of the plaintiff that he, an attending physician and a lifelong acquaintance of the deceased whose will had been offered for probate, having testified on a prior trial as an expert witness for the proponent of the will, at an agreed compensation of $50 per day, was thereafter employed by a succeeding attorney for the proponent at the same terms, to go over the witness' records to prepare himself so as to give expert testimony on the issue of the deceased's mental soundness, which he did on two trials, there having been three trials. It was, however, objected that as the plaintiff had been the attending physician, his testimony was not that of an expert, and that such agreement for compensation should not be enforced. But it seems settled that if a medical witness, or other witness with technical qualifications, goes beyond mere testimony to facts, observed by the senses, and is asked to draw a technical inference or conclusion, he may properly stipulate for compensation. The facts in this case were therefore within the pemissive rule, and the judgment on the verdict, for the plaintiff, should be affirmed with costs.

Society Proceedings

WESTERN SURGICAL ASSOCIATION

Twenty-Seventh Annual Meeting, held at Omaha, Dec. 14 and 15, 1917

The President, DR. LEONARD FREEMAN, Denver, in the Chair

Multiple Anastomosis for Intestinal Obstruction Due to Any Cause

DR. BENJAMIN M. RICKETTS, Cincinnati: To lessen the high mortality following operation for intestinal obstruction, early single or multiple anastomoses done rapidly with local anesthesia are best. One or more sittings will best conserve this purpose. Many supposed malignant growths are syphilitic or simple inflammatory products, and will disappear when irritation subsides. Syphilis as a causative factor in intestinal pathologic conditions has not been given due consideration. Mercury, when possible, should be given to limitation before and especially after the removal of intra-abdominal neoplasms elsewhere, because many will disappear under its influence. Conditions necessitating the removal of any part, especially all of the colon, for any cause, are seemingly in the great minority. When obstruction exists at and above the ileocecal valve, both the cecum and the ileum should be anastomosed with the sigmoid or rectum or both, several inches distant to each other, that both cecum and ileum may be drained perfectly. The jejunum should not be anastomosed with the colon unless it cannot be avoided, and then it should be anastomosed with the descending colon. When possible, the lower ileum should be brought up to and anastomosed with the jejunum. When possible, the ileum should be made to drain the cecum and ascending colon; but when it is impossible to cause the cecum to be so drained, the cecum should also be anastomosed with the sigmoid or ileum distant to or near the ileocecal valve. When the ileus involves the jejunum, the case is hopeless; but if a portion of the ileum is normal, extending down from the jejunum, then anastomosis below the collapsed ileum or colon should be done. Suture is more practical in the majority of instances. The presence of two buttons or bobbins in the intestinal tract at the same time should be avoided when possible. When multiple anastomoses are simultaneous, with one button, others should be by suture. The button is better adapted for emergencies, and the oblong button is better than the round button, because the oblong button produces a larger opening and is more certain to make its exit by the rectum. Drainage of all intestinal cavities should be provided for by anastomosis with button or suture or both. Colostomies and ileostomies executed rapidly with local anesthesia are methods of choice in the majority of intestinal obstructions. If the patient survives, time will be ample for suture anastomosis before returning the intestine within the peritoneal cavity, after having done whatever else is necessary within that cavity. Immediate mortality after removal of malignant growths from the intestinal tract is higher and longevity probably less than when rapid anastomosis is done with local anesthesia. Removal of patients with acute obstruction by ambulances over cobblestones and rails should not be tolerated; it would be better to render the necessary service where the patient is found.

DISCUSSION

DR. JOSEPH RILUS EASTMAN, Indianapolis: Too much radical and too frequent surgery has been done for the relief of intestinal stasis. Many cases can be relieved by very simple surgical measures, so that colectomy and short-circuiting operations are unnecessary.

DR. JABEZ N. JACKSON, Kansas City, Mo.: I agree with Dr. Eastman. Many cases of chronic intestinal stasis are amenable to proper medical and dietary treatment, if taken at the right time, and the treatment is kept up long enough. On the other hand, there are patients who can be cured or relieved by simple surgical procedures, and who do not require short-circuiting operations. Short-circuiting operations have always appeared to me to be unanatomic and unsurgical.

Fate of the Cystic Duct After Cholecystectomy

DRS. D. N. EISENDRATH and H. C. DUNLAVY, Chicago: After we had found clinically a dilated cystic duct the size of an almond, and containing two small calculi, two years after the removal of the gallbladder, a number of experiments were performed on dogs in order to observe the degree of dilatation of the cystic duct after the gallbladder had been removed at its junction with the cystic duct. Our work confirms that of previous observers, that the cystic duct probably through back-pressure of the bile becomes greatly dilated and reaches its maximum size at a period of from four to six weeks after the removal of the gallbladder. Animals killed at varying intervals of from one week to three months show a gradual increase in the size of the dilated cystic duct which reaches its maximum at about the middle of the period. This new formed gallbladder has undoubtedly played a rôle in the cases of recurrence following gallbladder operations in the human being, and brings up the question whether it would be advisable to remove the cystic duct close to the common duct in addition to the removal of the gallbladder.

DISCUSSION

DR. BYRON B. DAVIS, Omaha: I think it is very well demonstrated now that the gallbladder reforms after removal, that is, the cystic duct dilates, and the question arises whether under these circumstances we should ligate the cystic duct flush with the common duct or ligate farther away, near the base of the gallbladder, and leave a considerable portion of the cystic duct. Dr. Eisendrath takes the position that the ligation should be done next to the common duct. I agree with him.

DR. ARTHUR T. MANN, Minneapolis: I have had one case in which I put in a rubber tube for a common duct that had been destroyed, and months afterward the pressure of the bile down into the stump of the common hepatic duct produced a growth not larger than a good sized pea.

DR. WARREN A. DENNIS, St. Paul: In our cases of cholecystectomy the results have been admirable. If the gallbladder is sufficiently involved to produce unmistakable symptoms, it ought to be removed close to the common duct.

DR. HENRY T. BYFORD, Chicago: Physiologically, it is known that bile is secreted at certain times during digestion in quantities faster than it can be discharged into the duodenum, and the gallbladder has the function of a reservoir, so that it can take up the excess of bile. Another function is to help to propel the bile. During certain periods of digestion, when food is entering the duodenum, the gallbladder is stimulated to contract; hence the two functions, one relieving the excessive pressure and the other relieving the common and hepatic ducts from distention, and helping to propel the bile at the time it is needed and aiding in overcoming the resistance at the ampulla.

Spontaneous Rupture of Ventral Hernial Scar with Protrusion of the Small Bowel

DR. ROGER T. VAUGHAN, Chicago: A woman, who felt perfectly well for two years following a lower abdominal laparotomy, experienced a sudden pain in the abdomen. Examination revealed a loop of small bowel, 12 or 14 inches long, protruding through the median tear in the wide scar. The tear was so narrow as barely to admit a finger tip. The bowel was cleansed and replaced, the scar excised, and the hernia repaired transversed by imbrication (Mayo) without drainage. There was some postoperative fever due to peritonitis, but ultimately the woman made a good recovery.

DISCUSSION

DR. ROLAND HILL, St. Louis: A man, aged 30, was admitted to my service suffering from a hernia in which the bowel was lying free on the abdomen. He had been operated on for appendicitis six weeks before; the wound had not healed thoroughly, and at times there was a slight discharge of pus from the lower angle. Before entering the hospital, in doing some lifting, he strained himself and felt something bulge from the wound. He could not push it back. We found the cecum lying free on the abdominal wall. The bowel was dark; the man was in great shock; the opening was almost completely covered by the bowel. I cut the scar out, replaced the bowel, sewed it up in layers, and put in a small drain. In a few days he developed a fistula that persisted for some time; it was repaired by a secondary operation, and the man made a complete recovery.

DR. E. M. SALA, Rock Island, Ill.: Following a laparotomy for pus in which we used drainage, a fecal fistula developed. The man returned six month later to be operated on, but before operation he had a severe coughing spell and forced out a loop of bowel. I succeeded in getting the loop of bowel back, and he did not have a fecal fistula after that.

Closure of Fecal Fistulas

DR. ARCHIBALD MACLAREN, St. Paul: Among more than 5,000 major operations I saw seventy-seven fecal fistulas following or associated with some intra-abdominal surgical condition. There were fifteen deaths, or a mortality of 19 per cent. Many of these seventy-seven fecal fistulas were accidental cases which closed by themselves. The largest number of fecal fistula cases, twenty-four, followed operation for appendical abscess; the next largest number, twenty-two, were associated with ovarian abscess, and the next sixteen, tuberculous fistula. Eight cases followed injury to the intestine, including intussusception gangrene. Three cases were associated with carcinoma of the colon, two tubal abscesses, not apparently tuberculous; one a gangrenous gallbladder drained, and one following a perineal prostatectomy about ten years before. We closed five tuberculous fistulas at the first operative treatment. In closing a fecal fistula by suture, the great point is to loosen up the tissues sufficiently so that there will be no tension. The free peritoneal cavity is opened, if necessary, and the suture placed longitudinally rather than transversely, especially if the opening is a large one, so as not to constrict the bowel.

DISCUSSION

DR. A. W. ABBOTT, Minneapolis: One important form of fistula is that which opens into some viscus, more commonly the bladder. These fistulae are sometimes difficult to manage. In several such cases I have observed the contents of the intestine flow into a viscus, and not vice versa. The bladder will usually retain its urine. In a recent case, cystoscopic examination revealed a sort of valvular closure in the bladder which apparently prevented the urine from flowing back into the rectum. I have noticed that in several instances. These cases are not so difficult to cure.

DR. DANIEL N. EISENDRATH, Chicago: In the large percentage of fistulas following appendical abscesses, we have learned to be less rough in handling the cecum than in the past. There is one method I am using more and more, especially if the appendix is retrocecal, and that is, not to bother with taking off the appendix at the tip, but to begin in the ampulla, at the base, and work toward the tip. I believe that in this way we save 70 per cent. of the rough handling of the bowel that results in these fistulas.

DR. JABEZ N. JACKSON, Kansas City, Mo.: One should never operate in a case of appendicitis without removing the appendix. We get a decrease in mortality by that means, and the probabilities of a fecal fistula developing are lessened.

In cases of acute appendicitis, a great deal of time is spent by the operator in endeavoring to peritonealize raw surfaces exposed at the base of the appendix.

DR. C. H. WALLACE, St. Joseph, Mo.: It is a dangerous doctrine to advocate the removal of the appendix in all cases at the primary operation, as this will increase the mortality of operations for appendicitis among general practitioners rather than lessen it. As our experience increases, and as we learn to recognize the conditions that exist and remove appendixes before they do damage, our mortality will be proportionately lessened.

DR. B. MERRILL RICKETTS, Cincinnati: Experiments made on dogs at our laboratory in which various strengths of solutions of iodin were introduced into the peritoneal cavities of these animals have shown gangrene and extensive adhesions at necropsy.

(To be continued)

SOUTHERN SURGICAL ASSOCIATION

Thirtieth Annual Meeting, held at St. Augustine, Fla., Dec. 18-20, 1917

The President, Dr. W. D. Haggard, Nashville, Tenn., in the Chair

Causes and Treatment of Rupture of Uterus During Labor

Dr. E. Gustav Zinke, Cincinnati: The most frequent cause of rupture of the uterus is a prolonged second stage of labor, due to an obstruction of either maternal or fetal origin. The appearance of the contraction ring is the most significant sign of an impending rupture of the uterus. When rupture of the uterus is not the result of an imperfectly united cesarean scar, extirpated tube, myomectomy, etc., but is solely the consequence of an obstruction, its clinical picture is clear and definite. If the rupture is incomplete, the child may be extracted through the vagina if the hemorrhage is not severe or when the patient is in her home; if the patient is in a hospital, an abdominal section, quickly performed, may save both lives, even if there has been great loss of blood. If the rupture is complete, and the child is alive and vigorous, an immediate abdominal section is indicated, no matter what the condition of the mother, or whether she is at home or in a hospital. If the child is dead, and the mother's condition is hopeless, it is of no avail to interfere surgically under any circumstances. If the child is dead, and the mother's condition fairly promising, the child should be at once delivered through the abdomen, and the rent in the uterus and the peritoneum repaired; or, if an infection exists, a hysterectomy should be performed. The latter treatment promises little for the mother at home; but her life may often be saved if she is in a hospital.

Cesarean Section Done with Local Anesthesia

Dr. Hugh H. Trout, Roanoke, Va.: Often general anesthesia is contraindicated when cesarean section is indicated. Local anesthesia is almost ideal. There is very little pain to the operation, except when the uterus is lifted out of the peritoneal cavity and there is no pain on incision of the uterus. I introduce sutures into the uterus first before the incision is made. Afterward these sutures are tied across the incision so as to give double locking mattress sutures which not only approximate the surfaces, but also control the hemorrhage. My eighteen cases prove Lenander's contention relative to the sensibility of the various viscera and parietal peritoneum.

Discussion on Papers of Drs. Zinke and Trout

Dr. I. S. Stone, Washington, D. C.: The tendency at present is in favor of cesarean section from above. Probably we should under all circumstances go after the hemorrhage at its origin and deliver, unless the child has been so far delivered by the second stage as to make it necessary to deliver below because it is impossible to do so from above.

Dr. John Wesley Long, Greensboro, N. C.: Several years ago, when I reviewed the literature on rupture of the uterus, I learned that the rupture began from the peritoneal side rather than from the mucosa side. In the only case of rupture of the uterus that came into my hands, I opened the abdomen and did a supravaginal hysterectomy. The rupture occurred in front of the uterine artery so that there was very little hemorrhage. The woman made an uneventful recovery.

Dr. J. M. Mason, Birmingham, Ala.: I am of the opinion that cesarean section is the proper procedure in cases of puerperal eclampsia in which the patient is not yet in labor. The great danger has been not so much the operation, which produces perhaps less shock in many instances than prolonged labor, but the superadded general anesthetic that has heretofore been used in cesarean section. Local anesthesia removes the serious drawbacks to cesarean section.

Dr. Herbert P. Cole, Mobile, Ala.: I am a firm believer in local anesthesia. Several years ago I reported 700 cases of laparotomy done under local anesthesia. Since then I have performed hysterectomies under local anesthesia. I have also removed a 14 pound myoma from a woman, aged 60, with a bad heart lesion, under local anesthesia without particular discomfort.

Dr. Charles R. Robins, Richmond, Va.: At the end of labor, the veins are enormously distended and extremely tortuous, and I believe that in the vast majority of cases of fatal hemorrhage from rupture of the uterus, the blood comes from the venous plexuses and not from the uterine artery. Therefore, the bleeding is continuous and there is no effort at spontaneous stoppage. That is the reason why we should always open the abdomen in preference to trying to complete the operation from below.

Dr. E. Gustav Zinke, Cincinnati: It is not quite clear to me why we should resort to local anesthesia to perform a cesarean section when chloroform and ether or the A. C. E. mixture have been so satisfactory. It saves the woman the shock that she must necessarily experience when she witnesses the operation. There is no place for surgery in the treatment of puerperal eclampsia, and it has not added one iota to the reduction of the maternal mortality of eclampsia. Cesarean section, which I advocated more than fifteen years ago, is now recognized as the proper procedure.

Cranial Decompression for Head Injuries Accompanied by Signs of Increased Intracranial Pressure

Dr. R. L. Payne, Jr., Norfolk, Va.: In twenty-nine cases of severe head injuries accompanied by marked increase in pressure, subtemporal decompression was done; twenty-two of the patients recovered, while seven died. In the mild cases recovery occurs without a high increase of intracranial pressure. It is only in the severe cases, accompanied by a marked increase of pressure, that decompression should be considered. I have never seen a patient with acute high intracranial pressure, with a pulse of from 45 to 50, recover by operation if operation had not been performed until the pulse on the secondary rise had reached 95. Results would be much better in these cases if we relieved the threatened danger to the brain by a cranial decompression.

Long Resection of the Intestine

Dr. J. E. Cannaday, Charleston, W. Va.: In a case of multiple strictures of the small bowel due to ileocecal tuberculosis, 10 feet of the small bowel, besides the cecum, and 8 inches of the ascending colon were resected. The patient made an operative recovery, but died a few weeks later of a fulminant type of pulmonary tuberculosis.

Intra-Abdominal and Slit Hernias with Obstruction

Dr. Fred W. Bailey, St. Louis: I attended in a case of hernia through the foramen of Winslow and six cases of slit hernia or protrusion of the small bowel through apertures in the mesentery of the ileum and jejunum, gastrocolic omentum, omentum, and adventitious membranes. Acute obstruction with perforation of the gangrenous loop was present in the hernia into the lesser cavity, and death resulted. The issue was also fatal in an ileomesenteric hernia with volvulus and perforation. The remaining five patients recovered. There were four acute and two chronic obstructions in the group. Three of the cases were postoperative cases, and three followed inflammatory processes in the peritoneal cavity.

Sacral Teratoma: Glioma of the Upper Abdominal Region

Dr. James E. Thompson, Galveston, Texas: A sacral teratoma, as large as a coconut, was removed successfully from a child 6 months old without any injury to the rectum. The tumor contained cartilage, unstriped muscle, gliomatous tissue, ependymal tissue, cysts lined by epithelium, and glandular elements. The glioma occupied the upper abdominal region of an adult colored man. It was as large as a Rugby football. It was removed without particular difficulty, but its removal necessitated the removal of the spleen, the tail of the pancreas, and a portion of the greater curvature of the stomach. The patient made a very satisfactory convalescence. Microscopically, the growth resembled a spindle cell sarcoma. Careful examination revealed cellular elements, such as are seen in gliomatous tumors. Its probable origin was the splenic sympathetic plexus.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

January, 1918, 15, No. 1

1 *Varying Susceptibility of Children to Acidosis. M. Sawyer, F. A. Stevens and L. Baumann, Iowa City, Iowa.—p. 1.
2 *Intraperitoneal Injection of Saline Solution. K. D. Blackfan and K. F. Maxcy, Baltimore.—p. 19.

1. **Acidosis in Children.**—This report includes observations on ten boys whose reaction to acid-producing diets was studied. Tables and charts recording the results of the blood and urine analyses were made. A careful survey of the tables and charts leads to the conclusion that the response to such a diet is a variable factor. In a general way the increase of acetone bodies in the blood was proportionate to the severity of the acidosis. The glucose content of the blood was examined in eight cases; of these, six showed a decrease during the period of acidosis; two did not.

2. **Intraperitoneal Injection of Saline Solution.**—The results obtained by Blackfan and Maxcy from the use of this method in dogs have been so encouraging that they have adopted the method in the treatment of all cases of severe gastro-intestinal disturbance when the introduction of water in sufficient quantity by mouth is impossible. If the condition of the patient demands it the intraperitoneal injection is made immediately on admission to the hospital. The indications for repeating the intraperitoneal injection are, the general condition of the patient and continuation of vomiting. When the vomiting has ceased water is given by mouth, and as early as possible thereafter the food which is indicated is begun. In patients with acidosis, alkaline therapy is used.

American Journal of Medical Sciences, Philadelphia

January, 1918, 155, No. 1

3 Influence of War on Infant Mortality and Its Meaning. S. McC. Hamill, Philadelphia.—p. 1.
4 Prophylaxis of Malaria. C. C. McCulloch, Washington, D. C.—p. 10.
5 *Roentgenologic Diagnosis of Primary Carcinoma of Lung. F. B. McMahon and R. D. Carman, Rochester, Minn.—p. 34.
6 *Study of Sixty-Two Cases of Diabetes of Fifteen or More Years' Duration. A. A. Hornor and E. P. Joslin, Boston.—p. 47.
7 *Infarction of Heart Simulating Acute Surgical Abdominal Conditions. S. A. Levine and C. L. Tranter, Boston.—p. 57.
8 Brief Experimental Study of Morphology of Heart Muscle Following Hypothyroidism. H. Brooks and J. Larkin, New York.—p. 66.
9 Analysis of Fifty Cases of Malaria. O. H. P. Pepper, Philadelphia.—p. 70.
10 Primary Carcinoma of Liver in Infancy and Childhood. J. P. C. Griffith, Philadelphia.—p. 79.
11 Enteroptosis and Subnutrition; Their Relationship and Treatment. M. Einhorn, New York.—p. 85.
12 Some Points Respecting Localization of Syphilis on Aorta. O. Klotz, Pittsburgh.—p. 92.
13 Cardiac Dyspnea. F. W. Peabody, Boston.—p. 100.

5. **Roentgenologic Diagnosis of Carcinoma of Lung.**—Up to this time there have been 428 authentic case reports of primary carcinoma of the lung. The pathology of primary pulmonary carcinoma is most interesting. There are three main types of primary carcinoma of the lungs which present characteristic gross pathologic appearances; the infiltrative, the miliary and the mixed. McMahon and Carman maintain that the roentgen examination and the stereoscopic study of roentgenograms will early point to a pulmonary lesion and its probable nature. The areas of increased density found in primary pulmonary carcinoma are usually quite typical, and can be differentiated from areas of increased density caused by other diseases in the thorax, including inflammatory changes and neoplasms, both primary and metastatic. A careful correlation of the roentgen findings with the clinical history and the physical and laboratory findings usually makes a clinical and differential diagnosis possible.

6. **Diabetes of Fifteen Years Duration.**—In a series of 1,187 patients with diabetes, of whom 1,156 are traced by Hornor and Joslin, 640 are living and 516 are dead; among these were 62 who lived fifteen or more years, or 5 per cent., and of these 37 are living and 25 are dead. Obesity, which is universal in the long lived diabetic, was demonstrated in 60 cases out of 62. The average loss of weight when the patient first came to the authors for treatment was 41 pounds. Gallstones were recognized in 8 cases, being six times as frequent among these cases as in the entire series of 1,187 cases. The presence of adiposis was demonstrated twenty-one times and in 11, or 44 per cent., of the fatal cases the patients succumbed to it. Arteriosclerosis occurred in 36 cases and was a prominent factor in causing the death of 10 patients. Diabetes is now a minor issue in 50 per cent. of the living patients, and at the time of death was a minor issue in 28 per cent. of those who had died. An extremely rigid diet is necessary for only 4 of the patients now living. Of the fatal cases, 20 per cent. outlived the normal expectation of life for their age at the onset of their diabetes, and this is true for 10 per cent. of the living cases. Dietetic treatment was carried out to a considerable degree by 57 patients. Of the remaining 5 patients, 3 are among the dead.

7. **Infarction of Heart.**—Two cases are reported by Levine and Tranter. They were strikingly similar in their history, clinical course, physical findings, and necropsy examination. Both patients entered the hospital complaining of acute epigastric pain of a few days' duration in one case and of a few hours' duration in the other. Both had slight nausea and some vomiting, and felt quite sick, but neither had chill nor felt feverish. Their past histories were essentially negative except for antecedent angina in one. Physical examination showed marked tenderness in the epigastrium in each case and a questionable mass in the region of the gallbladder, over which the percussion note was dull. The pulses were of poor quality, slightly rapid, and the heart sounds were feeble. In neither case were cardiac murmurs heard, the apex beat was neither seen nor felt, and cardiac dulness was slightly increased in the second patient. One patient developed complete heart block shortly before death. The blood pressure in both patients was low, the pulse pressure in the first patient was only 12 and in the second 26. There were anomalous signs in the right lower chest in both instances, consisting of a moderate number of râles at one time and subsequently a diminution of the breath sounds throughout both lungs. The acute epigastric pain and tenderness, together with a leukocytosis of about 20,000 and a moderate fever in both cases made the diagnosis of an acute inflammatory or perforative lesion of the upper abdomen seem probable. The conditions considered were perforated gastric ulcer, acute pancreatitis, and acute gallbladder disease. A laparotomy with negative findings was performed on the first patient. The mild diabetes with acidosis in the second patient, together with the drowsiness, influenced the surgeons to consider that the patient might be on the verge of coma, and dissuaded them from operation.

The pathologic examination in both cases showed striking similarity in that the anterior coronary arteries were in each instance practically obliterated by thrombosis, with resultant extensive infarction of the heart. Generalized arteriosclerosis was likewise a common finding. The lungs, liver, spleen and kidneys showed acute passive congestion. The liver edge in the first case extended to a hand's breadth below the costal margin, which accounted for the abdominal mass palpated. No other lesions were found in the viscera, which could account for the symptoms.

American Journal of Orthopedic Surgery, Boston

January, 1918, 16, No. 1

14 Arthroplasty with Aid of Animal Membrane. W. S. Baer, Baltimore.—p. 1.
15 What Are Real Results of Arthroplasty? M. S. Henderson, Rochester, Minn.—p. 30.
16 Opportunities for Social Service in Orthopedic Clinic. E. M. Baker, Boston.—p. 34.
17 Method of Studying Nerves. S. M. Cone.—p. 42.
18 Old Ununited Fracture of Patella. W. A. Steel, Philadelphia.—p. 44.

Boston Medical and Surgical Journal

Jan. 3, 1918, **178**, No. 1

19 Differential Diagnosis of Pulmonary Tuberculosis. W. H. Smith, Boston.—p. 1.
20 Treatment of Eczema in Childhood. C. J. White, Boston.—p. 5.
21 Lipoids in One Hundred and Thirty-One Diabetic Bloods. H. Gray, Boston.—p. 16. To be continued.—p. 16.

Jan. 10, No. 2

22 *Examination of Soldiers for Tuberculosis in U. S. Army. E. O. Otis, Boston.—p. 33.
23 After-Care of War Cripple. E. A. McCarthy, Fall River.—p. 37.
24 *Paroxysmal Tachycardia of Ventricular Origin. F. A. Willius, Rochester, Minn.—p. 40.
25 Recognition of Surgical Kidney. B. Tenney, Boston.—p. 44.
26 Membranous Croup. D. M. Lewis, New Haven, Conn.—p. 47.
27 Some Effects of Massage on Colon. F. W. White, Boston.—p. 48.
28 Lipoids in One Hundred and Thirty-One Diabetic Bloods. H. Gray, Boston.—p. 50. To be continued.
29 Ventral Fixation of Uterus, Causing Dystocia. Ruptured Uterus Following Version for Transverse Presentation. Hysterectomy and Recovery; Report of Case. L. E. Phaneuf, Boston.—p. 55.

22. **Examination of Soldiers for Tuberculosis.**—Otis offers the following suggestive scheme for tuberculosis examinations when they can be made under favorable auspices in a permanent camp and with sufficient time for leisurely work and observation: 1. So far as possible, only experienced examiners should be employed. 2. Only a certain number of examinations should be made by the examiner in a day. 3. The place of examination should be such that comparative quiet can be maintained. 4. A short history should be taken of each soldier, which can be done by an intelligent and honest, noncommissioned officer according to a prepared schedule of which the following questionnaire is an illustration: (*a*) Have you ever had pleurisy, pneumonia, typhoid, influenza or any severe illness? (*b*) Did you ever spit up blood? (*c*) Have you been losing weight or strength recently? (*d*) Are you short of breath or exertion? (*e*) Have you a cough, and, if so, how long has it lasted? (*f*) Are you subject to colds? (*g*) How is your appetite and digestion? (*h*) Do you use alcohol? 5. All suspicious cases should be deferred for a second examination and consultation, and if then the doubt still exists the subject should be kept under observation for a period of time, or, if a roentgen-ray outfit is at hand and a competent technician in charge, roentgenograms can be taken. 6. When sputum is obtainable in a suspected patient it should be examined, and for this purpose a clinical laboratory should be at hand as well as for other bacteriologic examinations. 7. All cases with any developmental defects of the chest, should receive especial attention in the examination. 8. In suspicious cases, particularly with a pulse above the normal, the temperature should be taken at stated periods for several days. 9. All acute respiratory infections, such as bronchitis, influenza, laryngitis, etc., should be kept under observation in the hospital.

24. **Paroxysmal Tachycardia of Ventricular Origin.**—Paroxysmal tachycardia of ventricular origin occurred in only 0.047 per cent. of all abnormal electrocardiograms recorded in the Mayo Clinic. Two cases revealed conduction impairment. As an etiologic factor, a history of infection with the streptococcus group was elicited in four cases. The symptomatology in all cases was very uniform, palpitation, tachycardia and exertion dyspnea being complained of by all the patients. Vertigo attend the paroxysms in three cases. The average pulse rate during the paroxysms was 174. One patient coming to necropsy revealed distinct atheroma of the left coronary artery, which is very significant. As life is dependent on ventricular, and not on auricular action. Willins says that this condition must be considered potentially grave. Digitalis medication in two cases treated did not affect the abnormal rhythm.

Cleveland Medical Journal

December, 1917, **16**, No. 12

30 Manual of Clinical Laboratory Methods. C. L. Cummer, Cleveland.—p. 785.

Illinois Medical Journal, Chicago

December, 1917, **32**, No. 6

31 Conservation of Maternal Nursing. G. E. Baxter, Chicago.—p. 381.
32 Electrical Treatment of Infantile Paralysis. E. H. Grubbe, Chicago.—p. 384.
33 Treatment of Cavernous and Plexiform Angioma. F. Reder, St. Louis.—p. 387.
34 Review of Recent Work on Etiology of Pneumonia. W. W. Dicker, Chicago.—p. 393.
35 Removal of Steel Particles from Interior of Eye by Magnet. F. Allport, Chicago.—p. 395.
36 Interrelation of Diseases of Eye, Nose and Nasal Accessory Sinuses; Report of Cases. E. C. Spitze, East St. Louis.—p. 399.
37 Management of Squint. R. Von der Heydt, Chicago.—p. 404.
38 Prophylaxis in Eclampsia; Case Reports. W. H. Condit, Minneapolis.—p. 406.
39 Treatment of Hemorrhoids Under Local Anesthesia. C. J. Drueck, Chicago.—p. 411.
40 Liquid Petrolatum as Antiseptic. H. D. Junkin, Milford.—p. 416.
41 Course of Tuberculosis at Different Ages. J. Ritter, Chicago.—p. 416.

Indiana State Medical Association Journal, Fort Wayne

December, 1917, **10**, No. 12

42 *Diseases of Gallbladder; Diagnosis. A. C. Kimberlin, Indianapolis.—p. 457.
43 *Diseases of Gallbladder; Medical Treatment. C. R. Sowder, Indianapolis.—p. 460.
44 *Gallbladder Surgery. H. H. Martin, Laporte.—p. 463.
45 Cholecystectomy vs. Cholecystotomy. H. A. Duemling, Fort Wayne.—p. 466.

42, 43 and 44. Abstracted in THE JOURNAL, Oct. 27, 1917, p. 1468.

Journal of Experimental Medicine, Baltimore

January, 1918, **27**, No. 1

46 *Effect of Injections of Hemolytic Streptococci on Susceptible and Insusceptible Animals. J. G. Hopkins and J. T. Parker, New York.—p. 1.
47 *Common Colds as Possible Source of Contagion for Lobar Pneumonia. E. Valentine, New York.—p. 27.
48 *Study of Mitochondria in Experimental Poliomyelitis. C. F. McCann, New York.—p. 31.
49 *Localization of Streptococcus Viridans. H. K. Detweiler and H. B. Maitland, Toronto, Canada.—p. 37.
50 Morphin Hyperglycemia in Dogs with Experimental Pancreatic Deficiency. J. Auer and I. S. Kleiner, New York.—p. 49.
51 Studies of Lung Volume. Relation Between Thorax Size and Lung Volume in Normal Adults. C. Lundsgaard and D. D. Van Slyke, New York.—p. 65.
52 *Id. Tuberculous Men. A. Garvin, C. Lundsgaard and D. D. Van Slyke, New York.—p. 87.
53 Id. Tuberculous Women. A. Garvin, C. Lundsgaard and D. D. Van Slyke, New York.—p. 129.
54 *Solvent Action of Antiseptics on Necrotic Tissue. H. D. Taylor and J. H. Austin, New York.—p. 155.

46. **Injections of Hemolytic Streptococci.**—Hopkins and Parker found that with hemolytic streptococci, which are of rather low virulence for rabbits, a sublethal dose may completely disappear from the blood stream within a few hours. If a lethal injection is given, over 90 per cent. of the cocci are removed from the circulation within the first few minutes, and subsequent blood cultures reach a minimum in two to three hours, but after four to six hours the number again begins to increase. Even with lethal doses, cultures of 1 c.c. of blood may show no colonies after two or three hours, but, as a rule, streptococci do not completely disappear after such an injection. Streptococci taken up by the lung are killed within five to eight hours. In the liver they are killed less rapidly, and in the spleen a few may remain viable for a considerable period. About the time that the streptococci have begun to develop in the muscles (four to eight hours after injection) the number in the blood stream begins to increase. Septicemia, then, is probably the result of washing out of organisms from the infected tissues. Attempts to immunize rabbits have been unsuccessful, but in certain treated animals the distribution of the organisms among the various organs approached that found in insusceptible animals, that is, the cats.

47. **Cold and Lobar Pneumonia.**—In two instances of common colds, with no known contact with cases of pneumonia, Pneumococcus Type I was found to be the predominating organism, which strongly suggests that it was etiologic agent in these colds. If this is so, Valentine points out that common colds of this type must be looked on as a possible source of contagion in the development of lobar pneumonia due to the Type I pneumococcus.

48. **Mitochondria in Experimental Poliomyelitis.**—McCann says that typical mitochondria can be found in the spinal ganglion cells of monkeys with experimental poliomyelitis,

even when typical Nissl substance has disappeared, and mitochondria-like structures are found in the remaining protoplasm in the latest stage of neurophagocytosis.

49. **Localization of Streptococcus Viridans.**—The results of these experiments do not substantiate in full the theory of the power of selective action of *Streptococcus viridans*. A few strains showed a remarkable constancy in location and type of lesion, but these strains were greatly in the minority. The location of the lesions in animals seemed to bear no relation to the origin of the organism or to the lesions produced by it in the patient from which the strain was obtained. *Streptococcus viridans*, regardless of site of origin in the patient, produced most lesions in the heart and joints. The organisms were obtained from many different sources and from patients suffering from a diversity of ailments.

52. **Lung Volume of Tuberculous Men.**—The total capacity, middle capacity, and residual air were determined by the authors in thirty-one adult male patients suffering from tuberculosis of the lungs. In nine patients with incipient tuberculosis, the total lung volume was found within normal limits, whereas the vital capacity was diminished as a result of an increased residual air. The increase in the residual air was due to less complete expiration, caused partly by diminished movement of the diaphragm, partly by diminished compression of the chest wall. The diminished movement of the diaphragm was, as a rule, most marked on the most affected side. Whether these decreased movements are due to a reflex or to stiffness of the lung tissue could not be determined. The middle capacity was found practically normal. In twenty-two cases of moderately advanced and advanced tuberculosis, the total lung volume was in most cases markedly decreased. The vital capacity was substantially decreased, principally as a result of the diminished total capacity. The residual air was, as a rule, normal, although in a few cases an increase in residual air also contributed to the decrease in the vital capacity. The middle capacity was normal in some patients and considerably diminished in others.

54. **Solvent Action of Antiseptics.**—As the erosive action of Dakin's solution is an important factor, experiments were conducted by Taylor and Austin to compare its solvent action with that of certain other chlorinated antiseptics. The solvent action of the various substances employed was tested by adding 50 c.c. of each solution to 5 c.c. of an emulsion of macerated liver tissue in a 100 c.c. bottle. Chloramin-T solutions, hypochlorite solutions, chlorinated oils and dichloramin-T were tested. From the results obtained by the authors considerable stress is laid on the relatively great solvent action of Dakin's hypochlorite solution as contrasted with the more recent and more stable chloramins of Dakin. It also seems probable that to its greater ability to dissolve necrotic tissue, plasma clot, and leukocytes it owes its chief claim to preference over the chloramins in the treatment of infected wounds. The results also show that the solvent action of Dakin's hypochlorite solution in the degree of alkalinity used clinically is due primarily to its hypochlorite content. The slight alkalinity of Dakin's solution, while in itself without solvent action, does, however, increase the effectiveness of the hypochlorite. Chloramin-T failed in these experiments to exhibit any solvent action not explicable as an effect of the alkalinity of the solution in which it was dissolved, and dichloramin-T was also wholly without solvent action. The results of these experimental studies do not, therefore, support the clinical observations of Dakin and his associates, who assert that the chlorin in dichloramin-T, as in the hypochlorites, has the power of dissolving dead tissues. In the degree of alkalinity used clinically, the solvent action of hypochlorite is absent below about 0.2 per cent. sodium hypochlorite concentration. None of the antiseptics studied had demonstrable solvent action on blood clot.

Journal of Urology, Baltimore

December, 1917, **1**, No. 6

55 *Treatment of Carcinoma of Lower Genito-Urinary Tract with Radium. H. H. Young and W. A. Frontz, Baltimore.—p. 505.

56 *Study of Vesical Orifice Following Perineal Prostatectomy. E. M. Watson, Baltimore.—p. 543.

57 *New Method for Locating Small Calculi in Kidney at Operation. J. E. Burns, Baltimore.—p. 559.

58 *Injections of Papaverin in Experimental Syphilis. D. I. Macht and M. A. Reasoner, Washington, D. C.—p. 571.

55. **Carcinoma of Lower Genito-Urinary Tract Treated with Radium.**—During the past two years Young and Frontz treated with radium 66 patients with cancer of the prostate. In 42 of these, the tumor was extensive, not only the prostate but the seminal vesicles being involved. In 19 the process was confined apparently to one half of the prostate and the corresponding vesicle, while in 4 the vesicles were apparently free from invasion. The results have in many cases been most encouraging. Cases presenting marked urinary obstruction have responded in the course of six weeks to two months and in some instances a large residual urine has diminished to zero. Cases giving a history of voiding from ten to twelve times at night and then only with extreme difficulty and pain, have shown, after a course of treatment marvelous improvement, urination being accomplished in a normal manner. In 11 cases retention of urine was complete. The obstruction in these cases, with one exception, showed no improvement. 8 of them subsequently coming to operation for the relief of urinary retention. Fifty-one cases gave a history of more or less frequency and dysuria. In 17 the improvement was symptomatically very slight. In the remaining cases, the improvement in many was very striking. In 4 cases a prostatectomy had been performed previous to the application of radium. In 14 cases with evident metastasis there was pain in the back, hips or thighs. In none of these cases was there any alleviation of this symptom following radiation of the primary growth. This report also includes 45 cases of tumor of the bladder in which the patients were treated with radium alone or a combination of radium and fulguration. Of these cases 15 were papillomas, 30 carcinomas. The results obtained have been most satisfactory in the malignant papilloma type which have failed to respond to fulguration. The treatment with radium of the infiltrating types of malignant tumor has been less encouraging and in no case in which there was definite infiltration of the bladder wall, as demonstrated either by cystoscopy or by rectal palpation, has a cure been effected.

56. **Vesical Orifice after Perineal Prostatectomy.**—For this study twenty-five cases were taken at random. The operation in every instance had been the Young conservative perineal prostatectomy. The study of the vesical orifice was made in these cases by means of cystograms taken at varying periods after operation; that is, three weeks to thirteen years. In no instance did the internal sphincter remain permanently dilated and Watson feels that following perineal prostatectomy, the musculature about the vesical orifice becomes readjusted in the vast majority of cases. This occurs in some instances as early as the third week after operation and probably remains so thoroughout life, as shown in one of the cases in which the internal sphincter was functioning normally thirteen years after operation.

57. **Locating Calculi in Kidney at Operation.**—The procedure described by Burns has been found extremely valuable in the location of very small stones in the kidney substance. Some as small as 0.5 cm. in diameter have been located without difficulty. The requisites for success in this procedure are a good exposure of the kidney and a satisfactory delivery of it into the wound. It must be freed from the surrounding fatty capsule so that it can easily be lifted up and grasped between the thumb and fingers of the left hand. Further, it is essential to have satisfactory roentgenograms in which the outline of the kidney is clearly seen as well as the shadow of the stone. The operator must make the measurements on the kidney surface as accurate as possible so that the point at which the kidney is to be probed shall lie directly in line with the stone. By means of a straight liver needle or a fine probe the operator measures off the distance from the shadow of the stone to the border of the lower pole of the kidney (the upper pole if the stone be located in this region). The point of the needle should coincide with the center of the shadow of the stone, and the needle should be so grasped that the edge of the thumb will be on a line with the shadow of the lower border of the

kidney. This measurement is then transferred to the surface of the kidney and the thumb of the left hand moved down to the point indicated by the end of the needle and held in this position. The same method is then employed in mapping out the distance of the stone from the convex border of the kidney. These two points should coincide. Now if the liver needle be inserted perpendicular to the surface of the kidney at this point it should in its passage through the kidney come in contact with the stone. In other words, the stone lies in a line drawn perpendicular to the surface of the kidney at a point indicated by intersection of these two lines measured off on the roentgenogram.

After the stone has been definitely located by this means, usually by one attempt, the liver needle is withdrawn and a clamp introduced into the opening made by it, the blades separated slightly, and the stone grasped and removed. One chromic gut mattress suture is usually sufficient to close this opening. The kidney is returned to its usual position and two drains (a cigaret and a rubber tube) placed down to the opening into the kidney. The wound is then closed in the usual manner. This method prevents entirely the great mutilation and destruction of kidney tissue so often seen when an ordinary nephrotomy is done, and in consequence renders the operation less dangerous to the patient and a far more satisfactory procedure to the operator.

58. **Injections of Papaverin in Experimental Syphilis.**—Prolonged and repeated injections of papaverin produced in no case any toxic symptoms of a serious nature. In one series of experiments, no influence on the course of the disease and no effect on the lesions could be noted. In a second series of experiments, likewise, no effect on the development of the disease or on the development of the lesions was noted. Two of three inoculated animals developed typical testicular lesions as usual, the third was not affected. The results of the investigation may, therefore, be briefly stated as follows: Injections of papaverin have no appreciable effect on the course of spirochetic testicular lesions in rabbits; nor have they any influence on the development of the disease even when administered simultaneously with the inoculation of the syphilitic material.

Laryngoscope, St. Louis

December, 1917, **27**, No. 12

59 Fossa of Rosenmueller from Rhinologic Standpoint. S. Yankauer, New York.—p. 861.
60 Nasal Septum Deformity in Children. Study of Three Hundred and Fourteen Children. L. G. Kaempfer, New York.—p. 868.
61 Method of Medicating Eustachian Bougies. L. M. Hurd, New York.—p. 879.
62 Salivary Calculus; Report of Case. W. W. Carter, New York.—p. 881.
63 Stenosis of Nasopharynx Operation with Prosthesis. H. E. Isaacs, New York.—p. 885.
64 Case of Tic Douloureux Treated by Avulsion Method of Dr. Ernest LaPlace. H. H. Curtis, New York.—891.
65 Stone Removed from Esophagus of Insane Patient. H. Arrowsmith, Brooklyn.—p. 893.
66 Syphilitic Paralysis of Right Vocal Cord. G. E. Davis, New York.—p. 896.
67 Rib Transplantation for Correction of External Nasal Deformity. Unusual Experience in Two Cases. W. Scruton, New York.—p. 899.
68 Unusual Course of Pus in Neck of Case of Mastoiditis. J. W. Durkee, Brooklyn.—p. 901.
69 Fibroma of Ethmoid Region. R. H. Fowler, New York.—p. 903.
70 Two Cases of Atrophic Rhinitis Treated with Ichthyol Ointment. R. H. Fowler, New York.—p. 904.
71 Case of Accessory Tonsils. J. A. Hagemann, Pittsburgh.—p. 906.

Medicine and Surgery, St. Louis

December, 1917, **1**, No. 10

72 Courage and Fear in the Great War. G. T. W. Patrick, Iowa City, Iowa.—p. 1029.
73 Dramatist on Physicians. W. M. Reedy, St. Louis.—p. 1040.
74 French Physicians and War Literature. A. Schinz, Northampton, Mass.—p. 1050.
75 Age Limit—An Unfortunate Americanism. W. A. N. Dorland, Chicago.—p. 1060.
76 Alvar Nunez Cabeza de Vaca: First White Medicine Man in United States. C. Babre, Flagstaff, Ariz.—p. 1068.
77 Philibert Joseph Roux, 1780-1854. W. P. Coues, Boston.—p. 1074.
78 Concerning Salt. H. J. Achard, Chicago.—p. 1081.
79 Millionaires and Millennium. F. Grierson, Washington, D. C.—p. 1087.
80 Odor of Peculiars. L. P. Clark, New York.—p. 1091.
81 Mobilized Brain Power. C. O'Brien, New York.—p. 1095.
82 Some Interesting Chinese Writers and Writings. M. F. Morris, Jr., Chelsea, Mass.—p. 1098.
83 New Method of Tubulizing Tendon when Used as Free Transplant. P. G. Skillern, Jr., Philadelphia.—p. 1108.

Modern Hospital, St. Louis

December, 1917, **9**, No. 6

84 Private Ward of Massachusetts General Hospital. J. B. Howland, Boston.—p. 389.
85 Standards of Almshouse Administration. F. Bardwell, Boston.—p. 393.
86 Laxative Food Preparations and Their Composition. J. P. Street, New Haven, Conn.—p. 398.
87 Cincinnati's Successful Antituberculosis Campaign. C. Dinwiddie. Cincinnati.—p. 400.
88 Cafeteria Service for Tuberculosis Patients. H. D. Chadwick and H. W. Smith, Westfield, Mass.—p. 403.
89 Well Planned County Tuberculosis Hospital. R. K. Cummings, Webb City, Mo.—p. 406.
90 Standardization of Hospitals—Large Municipal Hospitals. J. A. Hornsby and others.—p. 409.
91 Small Town Hospital; Some of the Bases of Its Success. M. G. Phifer, Wheatland, Wyo.—p. 412.
92 Reclamation of Rejected Candidate for Army. J. H. Quayle, Cleveland.—p. 415.
93 Placing Cripples in Industry. E. Rigby, Boston.—p. 417.
94 Value of Case Records in Hospitals. E. A. Codman, Boston.—p. 426.
95 Hospital Organization and Efficiency. J. Y. Brown, St. Louis.—p. 428.
96 Educational Responsibility of Hospital to Profession and Community. A. B. Kanavel, Chicago.—p. 430.
97 Trained Nurse. A. W. Goodrich, New York.—p. 431.

Nebraska State Medical Journal, Norfolk

December, 1917, **2**, No. 12

98 Cystocele, Perineum Damage and Rectocele. P. H. Salter, Norfolk.—p. 509.
99 Prolapse of Uterus. A. I. McKinnon, Lincoln.—p. 513.
100 Fistulae of Pelvic Outlet. F. A. Long, Madison.—p. 513.
101 Fractures in Vicinity of Joints. C. O'N. Rich. Omaha.—p. 518.
102 Surgical Treatment of Uterine Hemorrhage. P. Findley, Omaha.—p. 522.
103 Roentgen Ray Treatment of Uterine Hemorrhage. A. F. Tyler, Omaha.—p. 523.

Ophthalmic Record, Chicago

December, 1917, **26**, No. 12

104 Neurologic Perimetry and Method of Imitating Daylight with Electric Illumination. C. B. Walker, Boston.—p. 600.
105 Irrigation of Vitreous Chamber in Case of Suppurative Panophthalmitis. F. Allport, Chicago.—p. 620.
106 Aborted Case of Adult Gonorrheal Ophthalmia. W. D. Stevenson.—p. 621.
107 Case of Laceration of Eyeball with Eyelash Driven into Lens. J. R. Smith, Chicago.—p. 623.

South Carolina Medical Association Journal, Greenville

December, 1917, **13**, No. 12

108 Infant Welfare Work in Iowa. L. R. H. Gantt, Spartanburg.—p. 761.
109 State Wide Plan for Infant and Maternal Welfare. W. Weston, Columbia.—p. 762.
110 Improvement of Rural Obstetrics with Special Reference to Midwife. G. F. Klugh, Cross Hill.—p. 764.
111 Pediatrics for General Practitioner. R. M. Pollitzer, Charleston.—p. 766.
112 Way to Cure a Child of Enteric Infection Accompanied by Greenish Stools. L. F. Robinson, Greenville.—p. 768.
113 Child Welfare Work in Rural Districts of South Carolina. L. A. Riser, Columbia.—p. 770.
114 Infant Mortality in South Carolina and South. E. A. Hines, Seneca.—p. 770.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

December, 1917, **25**, No. 12

115 Treatment of Simple Chronic Glaucoma with Myotics. H. Moulton, Fort Smith, Ark.—p. 275.
116 Nonsuppurative Otitis Media. J. H. Barnes, Enid.—p. 279.
117 Seat of Astigmatism. J. H. Schrant, Hutchinson, Kan.—p. 283.
118 Orthopedia, Artistic Department of Medicine and Surgery. B. Belove, Kansas City, Mo.—p. 287.

Southwestern Medicine, El Paso, Texas

December, 1917, **1**, No. 12

119 Tibiale Externum. F. P. Miller, El Paso.—p. 9.
120 Examination of Recruits by Roentgen Ray. A. G. Shortle, Albuquerque, N. M.—p. 12.
121 Lobar Pneumonia in Children. G. Werley, El Paso.—p. 18.
122 Symptomatology of Gastric Ulcer. T. C. Sexton, Las Cruces, N. M.—p. 21.
123 Medical Inspection of Schoolchildren. I. McNeil, El Paso.—p. 25.

124 Two Stage Operation for Prostatectomy. F. W. Noble, El Paso. —p. 29.
125 Davies-Colley Flap Operation in Cleft Palates. A. V. Smelker, Nogales, Ariz.—p. 34.

Tennessee State Medical Association Journal, Nashville

December, 1917, 10, No. 8

126 Surgical Treatment of Prolapse of Remaining Structures After Removal of Uterus. W. T. Black, Memphis.—p. 303.
127 *New Species of Streptothrix Isolated from Case of Rat Bite Fever. W. Litterer, Nashville.—p. 310.
128 *Remarks on Leukemi. W. St. John, Bristol.—p. 313.
129 *Roentgen Treatment of Uterine Fibromyomas and Hemorrhagic Metritis. W. S. Lawrence, Memphis.—p. 316.
130 Pneumonia. J. S. Campbell, Gordonsville.—p. 321.
131 Infant Welfare Work in Nashville. W. F. Acree, Nashville.—p. 326.
132 Morphinism. M. O. Davis, Nashville.—p. 330.

127, 128 and 129.—Abstracted in THE JOURNAL, April 28, 1917, pp. 1286 and 1287.

Texas State Journal of Medicine, Fort Worth

December, 1917, 13, No. 8

133 Local Anesthesia in Major Surgical Operations. A. C. Scott, Temple.—p. 269.
134 Acidosis and Internist. J. S. Lankford, San Antonio.—p. 272.
135 Diabetes with Special Reference to Obstetrics. H. Caldwell, and R. H. L. Bibb, Corpus Christi.—p. 274.
136 Treatment of Diabetes Mellitus. A. Woldert, Tyler.—p. 277.
137 Cardiovascular-Renal Disease. W. A. Boyce, Dallas.—p. 281.
138 Early Diagnosis of Cardiovascular Diseases. R. W. Baird, Dallas. —p. 284.
139 Painless and Bloodless Tonsillectomy. W. W. Fowler, Brownwood. —p. 286.

United States Naval Medical Bulletin, Washington, D. C.

January, 1918, 12, No. 1

140 *Dangers of Intravenous Injection of Antityphoid Vaccine. G. D. Hale and F. W. Hartman.—p. 1.
141 Treatment of Fractures of Thigh by Gassette Apparatus. G. Houzel.—p. 3.
142 *Pathologic Study of Splenic Anemia (Banti's Disease). F. W. Hartman.—p. 13.
143 Care of Contagious Cases and Their Importance to United States Navy. M. F. Gates.—p. 17.
144 Contagious Hospitals. R. K. Joslin.—p. 21.
145 Hospital Care of Contagious Diseases. L. A. Butler and V. Rau. —p. 27.
146 Examination of Aviators. R. A. Bachman.—p. 30.
147 Preparation of Dakin Solution. E. R. Noyes.—p. 41.
148 Preparation of Dakin's Solution and Carrel Technic in Treatment of Infected Wounds. W. N. McDonell.—p. 45.
149 Musings During American Cruiser's Visit to War Zone. C. N. Fiske.—p. 53.
150 Bedside Screen. M. F. Gates.—p. 75.
151 Small Stethoscope Bell. E. F. DuBois.—p. 75.
152 Entry of Vaccination and Typhoid Prophylaxis on Cover of Health Record. R. B. Henry.—p. 76.
153 Chronic Pancreatitis; Cholecystostomy and Recovery. F. W. Hartman and B. H. Hager.—p. 79.
154 *New Method of Treating Tropical Ulcers. J. A. Halpin.—p. 80.
155 Cases of Subdural Hemorrhage in Cerebrospinal Fever. U. R. Webb.—p. 84.
156 Dakin's Fluid in Treatment of Chancroid. W. A. Bloedorn.—p. 85.
157 Tetanus in Haiti. G. L. Wickes.—p. 86.

140. Dangers of Intravenous Injection of Antityphoid Vaccine.—A fatal case cited by Hale and Hartman plainly shows that the intravenous vaccine treatment is dangerous, that the first dose should be small and subsequent doses measured by the reaction of the patient to the first dose, and, finally, that the patient should be under close observation until the period during which anaphylactic shock may occur is surely over. In this case that 0.5 c.c. of standard typhoid vaccine or 500,000,000 bacilli with no special method of preparation was given intravenously, resulting in a marked reaction, one manifestation of which was a high fever. Then, seven days later, at the height of sensitization, a second dose even larger than the first was given. Thus over three times the maximum dose ordinarily used was given at the first injection, and four (probably more) times the maximum dose was given the second time, resulting in the typical symptoms of anaphylactic shock with death four hours later. The necropsy findings corresponded with those described in the experimental anaphylaxis of animals.

142. Pathology of Splenic Anemia.—The constant complaint of Hartman's patient was of pain and discomfort in the epigastrium and right upper quadrant associated with nausea, vomiting, diarrhea and irregular fever. Of thirty-two months' illness approximately sixteen months had been spent in different hospitals. The patient underwent a cholecystostomy in 1915. On admission to the hospital his face had a pinched expression. Weakness and malaise were very evident. The complexion had a yellowish tint, and the conjunctivae were slightly jaundiced. The teeth were in good repair, containing numerous fillings and crowns. There was some rigidity of the abdominal muscles, with pain on deep pressure over the epigastrium. The liver dulness extended from the third interspace to 4 cm. below the costal margin on the right side. The spleen was easily felt rising and falling with respiration as a firm rounded mass reaching 7 cm. below the costal margin during full inspiration. In addition to a moderate anemia (75 per cent.), leukopenia and relative lymphocytosis, many of the polymorphonuclear leukocytes showed a dense granulation, which tended to be basophilic, and band-form nuclei, and there was 1 per cent. of typical myelocytes and a few very large mononuclear cells with blue staining vacuolated protoplasm and lighter staining nuclei. Splenectomy was performed. Sixteen days after operation the hemoglobin was 80 per cent., red count 4,500,000, white count 14,200. Numerous atypical leukocytes with band-form nuclei and heavy granules were seen at this time, but no typical myelocytes. There was an increase in eosinophils and mast cells. Two months and a half after operation, the patient was free from all his former symptoms. Hemoglobin, 90 per cent.; white cell count, 12,800; red cell count, 4,900,000. There are many band-form nuclei in the polymorphonuclears with dense granulation of the protoplasm. Most of the lymphocytes are of the large type and the protoplasm, containing no granules, stains a steel blue. Increasing eosinophilia with continued leukocytes is striking.

154. Salt Solution in Treatment of Tropical Ulcers.—Three methods of treatment were tried by Halpin: One series of patients was treated with mercury salicylate injections and mercury salve. They did not respond to treatment, and at the expiration of two months the ulcers were the same, or, as in five cases, increased in size. The discharge was also increased. In the second series, those which were treated with autogenous vaccine and filtrate, the discharge was decreased. None of the ulcers, however, healed, and only slight improvement was noted. In the third series, those which were treated with a saline injection method, every case responded to this form of treatment. In the majority of cases the cure was very rapid and permanent, the old edematous tissue surrounding the edges of the ulcers disappeared rapidly and was replaced by healthy tissue, the discharges ceased, new healthy granulation tissue soon covered the ulcer and healing resulted. This treatment was as follows: The ulcers were thoroughly curetted and wiped off with sterile 0.6 per cent. sodium chlorid solution. Then a 20 c.c. syringe was filled with the same solution and the contents injected beneath the ulcer, the needle entering just at the margin of the ulceration and going deep enough to prevent the solution from oozing through. The ulcer is then recovered with sterile gauze saturated with the same solution. These injections were given daily as long as the ulcer persisted.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Journal of Laryngology, Rhinology and Otology, London

December, 1917, 32, No. 12

1 *Morbid Anatomy of War Injuries of Ear. J. S. Fraser and J. Fraser.—p. 369.
2 Foreign Body in Right Maxillary Antrum for Twenty-Five Years, Causing Facial Neuralgia. I. Moore.—p. 386.

1. Morbid Anatomy of War Injuries of Ear.—The only changes of importance found by the Fraser in the four cases of explosion injury of the ear were: (1) rupture of the drumhead and hemorrhages into the middle ear spaces; (2) hemorrhage in the fundus of the internal meatus in three of the

four cases. In two cases the neuroepithelial structures of the labyrinth appear to be normal. In one case the changes were possibly of postmortem origin, but appeared to be due rather to an early stage of degenerative neuritis. The Frasers suggest that it is possible that in many cases of shell or explosion deafness we have to deal with a functional affection, as suggested by Milligan and Westmacott. On the other hand, rupture of the drumhead and hemorrhage into the middle ear spaces must cause a certain loss of hearing, while hemorrhage in the fundus of the internal meatus may give rise to deafness, tinnitus, giddiness, and other symptoms of an inner ear lesion. It may be that the blow to the ear due to shell explosion, and the associated loud sound, paralyzes the delicate nerve endings of the auditory apparatus, but it cannot be claimed that this has been demonstrated microscopically.

Medical Journal of Australia, Sydney

Dec. 1, 1917, **2**, No. 22

3 Limitations of Military Orthopedic Surgery. M. O. Hughes.—p. 451.
4 Reestablishment of Crippled. R. B. Wade.—p. 452.
5 Neuromuscular Reeducation of Soldier. N. D. Royle.—p. 453.
6 Stiff Knee. C. MacLaurin.—p. 456.

Annales de Gynécologie et d'Obstétrique, Paris

September-October, 1917, **72**

7 *Metastasis of Melanosarcoma. A. Kotzareff (Geneva).—p. 641.
8 *Resection of Perineal Nerves for Vulvovaginal Pruritus. P. Mauclaire.—p. 655.
9 Organized Welfare Work for Infants and Mothers at Montevideo. A. Turenne.—p. 663.

7. Metastasis of Melanosarcoma.—Kotzareff declares that primary melanosarcoma of the external genital organs is the most malignant of all neoplasms. In the case described the primary tumor was in the left labium majus in a seamstress of 56 with two healthy children. It had probably developed from a pigmented nevus. It grew slowly for four months and then mestastases in the brain and elsewhere were evident.

8. Unbearable Vulvar Pruritus.—Mauclaire's patient was a widow of 34 who had persisting pains in the pelvis and smarting in the vulva, all coming on soon after appendicectomy plus resection of the left ovary and suspension of the uterus by passing the round ligament through the rectus muscles. Five months later the right ovary was partially resected, and this was followed by unbearable pruritus in vulva and vagina. There was no vaginism, and no relief was obtained by any measures except briefly transient relief from hot douches. After the patient had been under observation for a year, Mauclaire resected on the right side the superior perineal branch of the pudic nerve for a segment of 3 cm., back of the transverse muscle of the perineum. On the left side he made the incision against the ascending ramus of the ischium and resected the lower branch of the perineal nerve for a distance of 3 or 4 cm. in front of the transverse muscle. The pains and discomfort in the region disappeared the same day and have not returned since, although there is still vulvovaginal secretion as before the operation. To date, seven months later, there is nothing to indicate atrophy of the vulva. Mauclaire reviews the various methods in vogue for treating vulvar pruritus, and expresses his opinion that this partial resection of the genital branches of the abdomino-genital nerves seems superior to other measures from several points of view, especially by the technic he followed, namely, resection of the superficial nerve on one side and the deep-lying nerve on the other side. He refrained from attempting to anesthetize the vulva entirely, by severing all the abdominal-genital branches, from fear of bringing on trophic changes.

Bulletin de l'Académie de Médecine, Paris

Dec. 4, 1917, **78**, No. 47

10 *High Heels. E. Quénu and Ménard.—p. 634.
11 *Tuberculosis in Serbian Refugees. Petrovich.—p. 649.
12 Correction of Deformed Jaws. P. Robin.—p. 653.
13 Ossification Process in Supernumerary Fingers. L. D. Chambardel.—p. 656.

10. Injurious Influence of High Heels on Physiologic Processes.—Quénu and Ménard call attention to the artificially induced talipes equinus from wearing high heels. The hyperextension of the foot compels the trunk to be thrown back, while the knees are slightly flexed. This pulls on the quadriceps, and this in turn draws the patella up. Moving pictures of the gait with high heels (from 7 to 9 cm., that is, from 2¾ to 3½ inches), compared with the gait of the subjects (three young women) with bare feet, demonstrated the comparative inaction of the muscles of the leg and foot. This entails lesser activity in the nutritional phenomena of the contractile tissue and hence less perfect circulation through the leg. The "induced equinism" as they call it, upsets the architectural balance of the feet and legs, and the effect of the vicious attitudes is felt in the spine and pelvis to such an extent that high heels are directly contraindicated for the growing organism. In the discussion that followed, Barrier mentioned that veterinarians have long been recording the grave consequences of similar defective attitudes of the feet in horses, even although the horse is digitigrade and not plantigrade like man. Chronic osteoperiostitis is the consequence in the horse, and if the fashion of high heels is kept up long enough, a like incurable metatarsophalangeal osteoarthritis may be predicted in consequence. Kirmisson called attention to the tendency to valgus when high heels are worn, from weakening of the crural triceps. Linossier also reported that young girls with orthostatic albuminuria may be cured by having the heels removed from their shoes. The high heels induce and aggravate lordosis, and thus may be responsible for the orthostatic albuminuria.

11. Serbian Refugees in France.—Petrovitch states that there are 1,300 Serbian refugees and 2,100 repatriated severely wounded prisoners of war in France. Most of them are making munitions or working on the railroads, and one in every six is tuberculous. The proportion is still higher among the Serbian students. The rate in Serbia was 3 per cent. in 1906.

Bulletins de la Société Médicale des Hôpitaux de Paris

Oct. 19, 1917, **41**, No. 28

14 Fluid Extract of Salicaria in Treatment of Enteritis in Infants and Adults. H. Dufour.—p. 1029.
15 *Afebrile Spirochete Jaundice. N. Fiessinger and E. Leroy.—p. 1032.
16 *Spirochetosis of Icterohemorrhagiae Type. N. Fiessinger and E. Leroy.—p. 1035.
17 *Streptococcus Septicemia. P. Nobécourt and H. Gimbert.—p. 1037.
18 *Digestive Power of Gastric Juice Tested on Gelatin Tubes. F. Ramond, A. Petit and P. A. Carrié.—p. 1040.
19 Persisting Tremor Consecutive to Malaria. L. Marchand.—p. 1043.
20 Typhoid Form of Spirochetosis. Manine and Cristau.—p. 1045.
21 *Emphysema of the Lungs. L. Galliard.—p. 1048.
22 *Meningococcus Epididymitis. R. Lancelin.—p. 1052.

15. Afebrile Spirochetosis.—In two cases of afebrile jaundice Fiessinger and Leroy isolated from the urine a spirochete nonpathogenic for the guinea-pig. In one case the liver was much enlarged and there was albuminuria and azotemia with myalgia, but all the symptoms speedily subsided except that the liver outline is still abnormally large.

16. Febrile Spirochetosis.—In another case the symptoms were those of typical very severe spirochetosis icterohemorrhagiae. The case is remarkable only for the abrupt turn for the better after injection of 20 c.c. of "antispiro" serum.

17. Streptococcus Septicemia.—Nobécourt says that this was the only case of the kind encountered among the 3,000 soldiers in his service in over a year, with bacteriologic examination of the blood in 600 cases. The sudden onset, high fever, tenacity of the pains in the joints, the purpuric erythema on the arms, and the subconjunctival ecchymosis were special features. The spleen was hypertrophied and the albuminuria intense, but there were no signs of endocarditis although the pulse ran up gradually to 80, 120, 140. Necropsy revealed aortic valvular disease. An infarct in the inferior lobe of the right lung had also escaped detection. Death occurred the eighth day.

18. Test of Digesting Power of Gastric Juice.—Ramond adds 5 c.c. of filtered gastric juice to 5 c.c. of a 3 per cent. solution of gelatin in a test tube at room temperature. Tubes 15 mm. in diameter seem the best adapted for the purpose. The gelatin is sterilized at a temperature not surpassing 100 C., and the tube should be kept strictly vertical. He

usually adds 2 cg. of thymol on top of the gastric juice. A ring forms in the gelatin below the surface and makes its way downward. This is the work of the acid in the gastric juice. At the same time the surface of the gelatin grows lower and lower but much more slowly. The progress of this digesting away of the gelatin can be watched by a graduated scale on the tube or a paper behind it. The digestion proceeds normally about 2.5 mm. in twenty-four hours. Several tubes are used for each gastric juice. The test is a simple and practical method of determining the digesting power and the acidity of a given gastric juice.

21. **Emphysema of the Lungs.**—Galliard withdrew about 250 gm. blood and injected camphorated oil, and under these measures the man of 70 was materially relieved from his sudden menacing suffocation. It had come on a few hours before without known cause except a slight chilling, and death seemed imminent. By exclusion, acute ballooning of the lungs was diagnosed. Under the above measures it subsided completely. In a second case a man of 32 with mitral stenosis developed suddenly symptoms suggesting acute edema of the lungs, including blood-stained sputum. Wet cupping and venesection plus a digitalis preparation and restriction to a milk diet were followed by subsidence of the symptoms. They returned a few days later after errors in diet, but no vesicular murmur or fine râles at the base of the lungs could be auscultated from the rear. In front the resonance under percussion was exaggerated, with moist râles. The heart was concealed behind the dilated lungs. The man died in three days but there were no signs of congestion or edema in the lungs; they were merely large, dilated, as if blown up. There was no interlobular or subpleural emphysema.

22. **Meningococcus Epididymitis.**—Lancelin relates that this complication developed the forty-sixth, the twenty-third or the fifteenth day after the onset of severe epidemic meningitis. There was slight fever in only one of the three cases, and the epididymitis subsided without apparently leaving a trace. While it lasted the features closely resembled those of the gonorrheal type. The men were young sailors in the navy and none had had gonorrhea. The true meningococcus was cultivated from one and paremeningococci from the others.

Journal de Médecine de Bordeaux

December, 1917, 88, No. 13

23 *Paralysis after War Wounds. A. Pitres.—p. 263. Conclusion.
24 Reclus' Walking Stirrup for Fractured Leg. J. Guyot.—p. 271.
25 Experimental Picric Acid Jaundice. P. Lande and F. Marguery. —p. 277.

23. **Blunders in Diagnosis of Paralysis.**—Pitres refers to paralysis following war wounds of the limbs, complications from injury of different elements, from operations, from hysteria, etc., confusing the clinical picture. The false paralysis may be result of severing of certain tendon fibers or similar injury. The blunders in differentiation teach the imperative necessity for neurologists, in particular, "to think anatomically and physiologically," and to refrain from formulating the diagnosis until after thorough clinical examination and study of the pathogenesis of each of the phenomena observed and exclusion of all the eventualities liable to induce error.

Lyon Médical

November, 1917, 126, No. 11

26 *Radium Treatment of Cancer of the Tonsil. M. Lannois and Moutet.—p. 495.
27. *Urticaria with Malaria. C. Garin and C. Pasquier.—p. 499.
28 *Restoration of the Nose. M. Pont.—p. 508.

26. **Radium Treatment of Neoplasms in the Tonsils.**—Lannois and Moutet report the present condition of patients given radium treatment a year or more ago. One young man has nothing left of his tonsils, and the enlarged glands in the neck and axillae have subsided to normal size and shape. He has been an active wage earner during the year since, but recently some enlarged glands were palpated in the inguinal region. They do not seem to be metastases but a new manifestation of the lymphadenia to which he is subject. Two other patients are at work with no indication of recurrence. In a fourth case, a woman of 74 was treated for a lymphosarcoma in the left tonsil. A needle with stout thread was passed through the anterior pillar and the platinum tube containing 48 mg. of radium was drawn by the thread into the depths of the tonsil, a hole being burrowed for each end of the tube in the abnormal tonsil tissue. A small tampon of gauze was placed over it and the tube was left in place for nineteen hours. The dose applied was 912 milligram-hours. Improvement was rapid, the tumor promptly subsiding, and in a month or two both tonsils had completely retrogressed. In another case the cancer in the tonsil was far advanced but the symptoms were notably improved by implanting the radium tube in a slit made with the bistoury in the tumefied tonsil. It was left in place for twenty-four hours, and the condition was much relieved. The application was repeated later, and swallowing became less difficult but the enlarged glands in the neck were not modified. The man is now taking a course of roentgen treatment for them, but his condition is precarious.

27. **Urticaria with Malaria.**—Garin and Pasquier relate that among 135 malarial patients in the malaria hospital at Modane (Savoy) over 30 per cent. developed recurring urticaria with or after the malarial attacks. Diarrhea preceded the urticaria almost invariably, suggesting that some digestive upset was responsible for both. Malarial jaundice was also often accompanied with urticaria. The latter appeared almost exclusively in malarial soldiers with long intervals between attacks, but the attack was then followed by several others at two or three days intervals, first the diarrhea or jaundice and then the urticaria. They indicate severe infection.

28. **Plastic Operations and Prosthesis for the Nose.**—Pont is chief of the "stomatologic center" in the Lyons district, and he gives a number of illustrations before and after plastic operations on the nose. The cartilage implant technic seems to be superior to all other plastic methods. The traumatisms of war have given great experience in this line and fine results have been attained. With syphilitic and tuberculous lesions, extensive burns, cancer or lupus, it is often impossible to count on enough sound tissue to answer the purpose. For these cases and for those with bad outcome after a plastic operation, he applies a wax false nose, held in place by glue and by eyeglasses. This wax prosthesis lasts only three or four days but the patient is taught how to recast the wax. A more durable prosthesis can also be used, but it does not look so natural as the wax one. [THE JOURNAL summarized some articles on artificial noses in the issue of April 22, 1916, p. 1361.]

Paris Médical

Dec. 1, 1917, 7, No. 48

29 *Imported Tropical Diseases in France during the War. P. Carnot and R. Turquéty.—p. 437.
30 *Chronic Enteritis in Ameba Carriers. G. Mouriquand and E. Deglos.—p. 445.
31 *Technic for Detection of Ameba Cysts, etc., in Stools. J. Carles and E. Barthélemy.—p. 453.
32 Relapsing Fever in Macedonia. P. Armand-Delille and H. Lemaire.—p. 455.
33 Beriberi at Marseilles in Troops and Coolies from Indo-China. J. A. Sicard and others.—p. 459.
34 Prophylaxis of Malaria in Macedonia. Visbecq.—p. 463.

29. **Amebic Dysentery in France.**—The presence of troops from the colonies in France and the expeditions of French troops to Macedonia and elsewhere have made amebic dysentery one of the prominent questions of the day, as it is liable to gain a foothold before its true nature is suspected. Nothing but the discovery of the amebas or their cysts in the stools renders the diagnosis certain. The stools must be examined fresh or be kept at body temperature as the amebas lose their motility when chilled. Their movements and the red blood corpuscles included in their endoplasm are the chief differentiating features. The cyst is quite small and has only four nuclei. The cysts keep well in formol, and show up better when treated with a drop of Gram's solution. The amebas or cysts can be obtained more certainly after a purge or injection of an irritating iodo-iodid solution or intravenous mercurial injection. The frequent association of amebas with other microbes hinders differentiation, while the clinical picture is liable to be modified thereby. Carnot has encountered three cases of an ameba abscess in the lung, healing under

emetin. This cures the acute phases and ameba liver abscesses but it seems powerless against the encysted form. The cysts lie in the depths of old ulcerations through which there is little circulation of blood and hence they escape the influence of drugs. To overcome this, he injected into the rectum oxygen passed through an Oudin *ozonateur*, the gas distending the intestine as it enters loop after loop. It is borne well even when there is spasmodic contraction, and as the walls are distended the crevices are smoothed out, and thereafter no further amebas or cysts were found in any of the six men thus treated. The injection was given twice a day and retained.

30. **Chronic Amebiasis.**—Mouriquand and Deglos insist on the necessity for repeated reexamination of the stools with chronic diarrhea. The elimination of the ameba or its cysts is irregularly intermittent, and one or two negative findings are not conclusive. Mastication must be supervised with special care, especially of vegetables, and the diet should not bring on fermentation diarrhea. They give four series of six daily injections of emetin, with six day intervals. After the emetin a series of four injections of neosalvarsan at six day intervals, concluding with a final series of six injections of emetin. The diarrhea itself is combated, and not until the clinical picture has much improved and the stools have given negative findings on four weekly examinations is the man regarded as ready for dismissal as convalescent.

31. **Detection of Ameba Cysts.**—Carles and Barthélemy comment on the necessity for examining the stools for amebas at the very bedside, especially in winter. In chronic cases it may be necessary to obtain mucopus by rectoscopy directly from the ulcerating surface. The cysts keep well with 10 per cent. formol or a few centigrams of trioxymethylene. They work with a homogeneous emulsion of 20 or 25 gm. of stool in saline with 10 per cent. formol. This is passed through brass wire netting of 1 mm. mesh; then through a silk filter laid without folds in a funnel. The silk is about 15 cm. square and is of the kind used by millers, called bolting cloth. In examining for cysts, a silk is used with 63 threads to the centimeter, the interstices averaging 100 microns. For trematod eggs, silk with 32 threads to the centimeter, and for microphotographic work, No. 90, that is, averaging 90 threads to the centimeter. The stool fluid after the second straining is centrifuged for one minute at 1,800 turns. More rapid centrifugation is liable to deform or burst the elements. The supernatant fluid is decanted and the residue is diluted with a 12 per cent. solution of citric acid with 2 per cent. formol, specific gravity 1.047.

Enough space is left in the tube to add 1 or 2 c.c. of ether and the whole is vigorously agitated and then centrifuged anew at 1,800 turns for thirty seconds. As the ether rises, it carries up particles with it, and the pellicle thus formed at the zone of junction of the ether and the rest of the fluid is broken up with the tip of a pipet to release the solid particles. After centrifuging again for thirty seconds, all the fluid is decanted, leaving nothing but the small clot which contains the cysts of protozoa, helminth eggs and possibly some débris of food. All the blood corpuscles and fat and the greater part of the bacteria have been eliminated. This "sieve and similihomogeneization" method, as they call it, shows up associated parasites as well as the ameba cysts. They are convinced that many ameba diarrheas are kept up by superposed parasitism. By curing the latter, the former can be successfully eradicated. In Mauté's experience, clearing the bowel of ascarides permitted the cure of otherwise refractory amebiasis. Others have had similar experiences with the lamblia and the trichocephalus. When the stools fail to show encysted amebas, the finding of other parasites may explain the clinical picture. Even the *Endamoeba coli* may acquire pathogenic properties under certain circumstances. Differentiation of all these is simple, easy and complete in ten minutes, they say, by the technic here described.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 1, 1917, 47, No. 48

35 *Allergy with Skin Diseases. W. Lutz.—p. 1601.
36 *Drugs that Influence the Temperature. R. Isenschmid.—p. 1610.

December 8, 1917, 47, No. 49

37 *Symposium on Goiter. T. Kocher.—p. 1633; C. Roux.—p. 1655; A. Kocher.—p. 1673; E. Bircher.—p. 1678; J. Kopp.—p. 1682; F. de Quervain.—p. 1688; K. Arnd.—p. 1694; E. Kummer.—p. 1697.

35. **Allergy with Skin Diseases.**—Lutz reviews the present status of our knowledge in this line and points to certain questions still waiting for solution. Among them is the query why tuberculids are so rare in comparison to the prevalence of mild internal tuberculous affections. Also why they occur under such different forms in different persons when other conditions seem to be identical. The assumption that idiosyncrasies are of the nature of allergy has been sustained by Bruck's successful transmission of an idiosyncrasy to pork, and by Rosenthal's experience that Tartar children brought up on mare's milk may display anaphylaxis to horse serum Idiosyncrasy to drugs seems to be more complex. To date no one has succeeded, he declares, in passive transmission of an idiosyncrasy to drugs, as has been realized with albuminous substances.

36. **Drugs that Influence the Temperature.**—Isenschmid remarks that for a drug to have a durable influence on the temperature of the body it must act on the heat regulation center. Most of the drugs of this kind are poisons for the nervous system, and especially for the vegetative nervous system. The sympathetic system seems to be responsible for the rise in temperature and the autonomic for the drop. This antagonism between these systems is perhaps most plainly apparent in the action of drugs on the pupil. Drugs that dilate the pupil usually have the faculty of raising the body temperature, while those that contract the pupil, like pilocarpin, reduce the temperature when introduced into the blood. The strong sedatives have also a temperature reducing action, as they act on both the components of the heat regulation center, the end result being a decline in the temperature. The drugs that have a special antipyretic action, including quinin, are all sedatives, and owe much of their vogue to the general tranquilizing and pain relieving effect. They reduce the excitability of the heat regulation center and by this means depress the fever. The central action has been proved by the typical reduction of the temperature when a minute amount of some drug of this group is introduced directly into the brain of the animal. The fever induced by injection of salt, of hemoglobin, peptone and other substances evidently is the result of irritation of the heat center, and this is also the case in infectious diseases, the bacterial toxins irritating this center. The fever with anaphylaxis is of the same mechanism. Drugs that reduce the irritability of the heat center are thus logically indicated in treatment of fever of infectious origin, but heat is the normal, centrally acting antipyretic; and cold is the normal, physiologic, likewise centrally acting temperature-raising means. The higher and lower external temperatures are conveyed to the heat center by way of the blood. The glands with an internal secretion may also be involved; certain facts already observed suggest this, especially the difference in the behavior of the rabbit surviving heart during heat puncture fever if the thyroid has been removed.

37. **Goiter: Treatment and Prophylaxis.**—Over sixty-seven pages are devoted to the addresses and discussion on goiter at the last meeting of the Swiss Surgical Association, March 10, 1917. Kocher discussed the history of operative treatment of ordinary goiter and means to ward off goiter. He emphasized the importance of the blood picture as an index of whether the thyroid functioning is deficient or in excess. With hypothyreosis the enlarged thyroid should be reduced in size only what is absolutely necessary to relieve mechanical disturbances, leaving as much of the functioning gland tissue as possible. The arteries should not be ligated if it can be possibly avoided, as this is liable to devitalize the tissues nourished by them. On the other hand, with hyperthyreosis, the operation should remove enough of the gland, but never the whole, and the functioning should be checked by ligating the main arteries, with or without excision. Kocher advocated enucleation of the diseased tissue while retaining the sound tissue. This guarantees better against recurrence, he said, than Mikulicz' wedge excision and the Porta-Socin method of enucleation. With vascular or exophthalmic goiter

more than two arteries (3 or 3½) must be ligated to ensure hemostasis. All four or five arteries should not be ligated except at two sittings. What he called the primary subperithyreal ligation of the arteries, especially the inferior, seems to be the simplest and safest technic when the perithyreum is free.

The mortality of goiter operations has been brought down in fifty years from 30 per cent. to 3 per thousand and further progress can be only in the line of prevention. For this he advocated modifying the drinking water by addition of a minute amount of iodin. In the endemic foci the children first show signs of goiter after a few months in school; the confinement in school predisposes them to feel the effects of the unknown substance that causes goiter. On the other hand, army service is liable to cause the retrogression of established goiter. Güttinger reported that in one group of 417 young recruits—all just 20—331 showed goiter at the beginning of their military service, but no signs of goiter could be discovered in 146 of them at the close of their service. Of seventy-six visible goiters all had retrogressed except 21 per cent., and of 138 goiters evident on palpation, only 58 per cent. could still be felt by the end of their term of service. These facts confirm the importance of hygiene and outdoor life in warding off goiter. Kocher cited experiences which demonstrate the favorable action of iodin in the earliest phases of endemic goiter. Also the experiences with fishes which developed goiter in certain ponds and the goiters retrogressed when a minimal amount of iodin was added to the water. He therefore suggested that in endemic foci of goiter the younger schoolchildren should be encouraged to drink freely of water prepared with a minute amount of iodin. This in connection with good ventilation, clothing that does not bind anywhere, regular bowel movements, and plenty of exercise in fresh air will tend to ward off the development of goiter. That good drinking water not only prevents goiter but aids in the retrogression of old goiters, was proved by his experience with Lauterbrunnen water supplied to 75,000 schoolchildren in the Bern district. He urged that this water should be barreled for the schoolchildren.

37. **Goiter.**—Roux gives charts showing how the number of operative cases in Switzerland has increased from eight in 1870-1875 to 7,809 in 1911-1915, while the postoperative mortality has dropped from 12.5 to 0.66 per cent. Of this mortality, pneumonia formed over 37 per cent. Permanent injury of the recurrent nerve occurred in 1.22 per cent. of the 20,654 Swiss operative cases he has compiled, and transient injury in 0.81 per cent. It does not depend on the technic so much as on the gravity of the case. As the goiter is drawn out, the recurrent nerve may be stretched or it may be injured by some hasty movement in case of hemorrhage from rupture of the inferior thyroid artery, or in shelling out nodules at a second operation. The anastomoses or newly formed arteries are so numerous that in clamping them the nerve may get pinched. He warns further that in elderly fat women some of their nerves can be compared only to fresh butter, and they should be left strictly alone. In any event, he continues, no one who has never had an injury of the recurrent nerve should set himself up as a medicolegal expert and pass judgment on one who has. His turn will come if he keeps on operating. Another point on which Roux dwells is the rapidity and treachery of recurrences after quadruple ligation.

37. **Recurring Goiter.**—A. Kocher relates that he had permanent injury of the recurrent nerve in six of his 1,200 goiter operations, with transient injury in twenty-three. Postoperative pneumonia can be warded off with practical certainty in nearly every case, and the mortality has been reduced to the minimum with Kocher's enucleating or excision-resection method. The main point is to leave sufficient functionally capable tissue. Quality is of more importance than quantity, and it is necessary to keep from injuring the thyroid tissue during the operation. These two points render it necessary to avoid extensive operations on both sides. To relieve the trachea from pressure, to correct the stasis and to leave sufficient functioning tissue, it is better to operate only on one side of the goiter at one sitting. The so-called recurrence operation, namely, removal of part of the other half, can be done later, and if the Kocher enucleation resection is correctly applied, the results have been so excellent that this can be recommended without hesitation.

37. **Goiter in the Tuberculous.**—Bircher makes a point of operating on goiters in patients with pulmonary tuberculosis. This removes the obstruction to their breathing and gives them a better chance for healing of the lung process.

37. **Trachea Flattened by Goiter.**—Bircher gives an illustrated description of the way in which he passes a thread through the side wall of the flattened trachea and then through the sternocleidomastoid muscle. A series of such threads on each side holds the lumen of the "saber-sheath" trachea open. Some of the threads can be brought out in front. In one case he applied eighteen of these supporting threads, the trachea having been squeezed flat down deep into the thorax and there had been several attacks of suffocation during the operation.

37. **Injury of the Recurrent Nerve.**—Kopp reported that in his 812 goiter operations the recurrent nerve had been injured in 1.7 per cent. He had noticed in his own and others' experience that this injury did not occur at the point where it was most liable, namely, at the ligation of the inferior artery. This he explains in the same way as Alpine guides explain that accidents rarely occur at the most dangerous points, but only when caution is relaxed.

37. **Types of Goiters.**—De Quervain gives an illustration of the four main types as calling for excision, resection or shelling out of the cysts or nodules. He makes a point of ligating the inferior thyroid artery as the first act of the intervention, with rare exceptions. But he always refrains from ligating all four arteries; three or three and a half is the maximum, and two the average number ligated. The main thing is to protect against injury of any kind the part of the goiter that is to be left. Only with diffuse follicular and with exophthalmic goiters, the ligation has direct therapeutic importance, and only when extensive. In twenty-one cases of exophthalmic goiter or diffuse hyperplastic goiter, he applied ligature alone in treatment but restricted it to three and a half arteries. There were no evidences of tetany thereafter or other symptom of hypofunction.

37. **Pneumonia after Goiter Operations.**—Pneumonia was responsible for all but one of Arnd's twenty-six fatalities in 1,300 operations for goiter. All but one were in his public hospital service, and he is inclined to ascribe the pneumonia to the lack of hygiene in the mouth of this class of patients. "If we had an effectual antiseptic for the mouth the statistics for goiter operations would improve." Long operations also favor pneumonia, as the position of the head is liable to entail nausea and vomiting in time.

37. **Ligation for Hyperthyreosis.**—Kummer reports the case of a boy of 13 with goiter, tachycardia, 60 per cent. neutrophils and 27 per cent. lymphocytes. Ligation of both inferior thyroid arteries and the anterior branches of the two superior thyroid arteries was followed by rapid subsidence of the thyroid to normal size. By the seventh month pronounced symptoms of hypothyreosis were manifest, but no deficit in parathyroid functioning. Under thyroid treatment the boy threw off the myxedema and by the thirteenth month seemed in good condition, and further treatment was abandoned.

Policlinico, Rome

November 11, 1917, **24**, No. 46

38 *Associated Movements after War Wounds. L. Roncoroni.—p. 1353.

39 War Wounds of the Elbow. P. d'Alessandria.—p. 1358.

40 *No Alcohol in the Hospital Fare. G. Jona.—p. 1361. Concluded in No. 47, p. 1391.

November 18, **24**, No. 47

41 *Five-Day Fever. A. Ceconi.—p. 1381.

November, **24**, Surgical Section, No. 11

42 *Malignant Edema without Gas. I. Scalone.—p. 433. Conclusion.

43 *Intracranial Enterococcus Complications of Otitis. P. Calicetti and R. Vaglio.—p. 450.

44 *Technic for Arthrotomy of the Knee after War Wound. R. Mosti.—p. 458.

45 Experimental Lesions of the Pituitary Body. A. Chiaserini.—p. 469. To be continued.

38. **Synkinesia.**—Roncoroni applies this term to the unintentional movements accompanying a volitional movement in men who have been wounded in war. He analyzes the synkinesia from imitation, from incoordination, and from global synkinesia, seeking the causal factors in each type of this automatism. Although the symptoms differ widely, yet the basis of the synkinesia seems to be the same for all.

40. **Hospital Fare Without Alcohol.**—Jona gives the statistics from the Venice hospital connected with the medical school to show that no harm has resulted from the complete discarding of wine and brandy. The educational effect from the suspension of alcohol has been most excellent and widespread. Even the elderly chronic cases seem to do just as well without it, and 78 per cent. assured the investigators that they did not feel the loss of the wine as a privation, and the others seemed to miss it only as an agreeable relish. None showed any signs of physiologic loss from its absence although all had been accustomed to a little wine every day.

41. **Five-Day Fever.**—Ceconi describes in detail the peculiar fever with pains recurring at five-day intervals, as a rule, during four or five weeks. No deaths have been known from it, but it keeps the men out of the ranks for seven or eight weeks in all. Quinin seems to be ineffectual, but neosalvarsan sometimes has relieved while no effect was apparent in other cases. The main indication is to relieve the severe pains. The tibia is the chief seat. A constricting band has helped in some instances. A favorable influence on the course was sometimes noted under continuous use of arsenic internally. The disease seems to be transmitted by the body louse, but its causal germ is still unknown.

42. **Malignant Edema Without Gas.**—Scalone reports five cases in which the malignant infection had developed after comparatively slight wounds with crushing of muscle tissue. The path of the projectile was a tract of putrid mortification and edema developed early. It spread to the end of the limb but not up to the trunk. Death occurred from heart failure in every case, although the conditions did not seem at all menacing as there was neither gas nor spreading gangrene.

43. **Otitic Complications with the Enterococcus.**—Caliceti and Vaglio describe three fatal cases of purulent meningitis and thromobophlebitis of otitic origin from which the enterococcus was cultivated. The stormy onset and rapidly fatal course suggest that enterococcus infection of the middle ear is characterized by special gravity. In one case there had been recurring otitis media for four years; in the others the otitis was of recent origin, two months or ten days, and had been exceptionally destructive even before the intracranial complications.

44. **Technic for Operating on the Knee after War Wounds.**—Mosti says that a U incision comprising the patellar ligament gives exceptional facilities for draining the articular cavity, while it permits free access to the whole joint and thus facilitates extraction of projectiles, splinters of bone and foreign bodies. The objection to this has been that the flap thus formed retracts and the severed patellar ligament never regains its former strength. He obviates this by keeping the flap stretched all the time. Two broad strips of adhesive plaster are fastened to the skin of the flap. Their outer ends form a loop through which is passed a piece of rubber tubing. The plaster cast is made with a metal rod projecting for 10 cm. beyond the sole of the foot. To this rod is fastened the rubber tubing fastened to the U flap over the knee. This keeps the flap slightly stretched and slanting up a little from the front of the knee, leaving the articular cavity gaping. He keeps it irrigated by the Carrel method, but prefers Giannettasio's fluid for the purpose. When ready to suture, the stumps of the patellar ligament are freshened, as also the edges of the entire U incision, and the ligament is sutured with catgut, the rest held together merely with clips. Capillary drainage can be kept up for a time longer, to drain the recess back of the quadriceps. If resection has reduced the size of the joint, there is no fear of retraction of the flap, but the above technic still is superior as it provides so excellently for drainage. He has been applying it for several months with excellent results and describes three cases in detail to show its advantages in different types of cases.

Riforma Medica, Naples

Nov. 10, 1917, **33**, No. 45

46 *War Wounds of the Skull. S. Salinari.—p. 1053.

Nov. 17, 1917, **33**, No. 46

47 Multiple Osteomyeloma with Albumosuria. (Morbo di Kahler.) A. Testi.—p. 1073.

48 Signs to Differentiate Pyramidal Disease. F. Bonola.—p. 1078.

49 Indications for Spinal Anesthesia. G. Cocci.—p. 1079.

46. **War Wounds of the Skull.**—Salinari remarks that the metal helmets now worn answer their purpose admirably "except for being antihygienic and anti-esthetic," but that some addition should be made to them to protect the temples. He states that 12 per cent. of the total 15,000 wounded had been wounded in the head. In 5 per cent. of these the wounds were in the face. Injury apparently of the soft parts alone should always be distrusted; the destruction or contusion of nerve tissue always extended beyond the bone lesion. A large proportion of the men with skull wounds seemed to bear them at first without much general disturbance. They might complain of the painfulness of the wound, but they were able to walk about, and several remarked that if they had not been bleeding so much they would not have thought of going to the dressing station. Even many men with severe focal symptoms recovered completely in a few days after trephining, and have shown no disturbances since. "War surgery has certainly triumphed in skull wounds." The traumatic shock was allowed to subside, as a rule, before operating. The routine procedure in case of a mere dent in the skull was to examine at once with the roentgen rays. If the findings were negative, the soft parts were drained and the man kept under supervision for a certain time after healing. When the rays showed signs of irritation or injury of the meninges or brain, but the skull intact, the rule was to wait a few days to see whether conditions were improving, ready to trephine promptly if they grew worse. This was done earlier if the cerebrospinal fluid was blood stained. If the dura was found intact and of normal aspect, nothing further was attempted as the decompression and removal of loose scraps of bone in case of partial fracture generally turned the scale in favor of recovery. Under other conditions, an exploratory operation was done, and this was the rule also at once in grazing wounds, whatever the state of the skull. No delay was allowed with these grazing wounds, and the degree of injury of the brain below and the promptness of recovery after the intervention were both surprising. In extracting splinters of bone, they must be held parallel to their natural position, as in turning them around they are liable to injure the meninges. The exploration and clearing out of the wound may require the enlarging of the hole in the skull, and this can be done without fear. No attempt was made to suture early. Paresis from compression disappeared promptly, in twenty-four hours at least. The disturbances in speech were the latest to retrogress.

Hernia of the brain was treated with compression. This was usually applied by means of a gauze disk over which were loosely sutured flaps of the surrounding skin, according to Delagenière's method. The head was kept high, and lumbar puncture was done if much headache came on. After eight or ten days, the sutures were cut, a fresh disk of gauze was introduced and the skin sutured again, drawn a little tighter. If the prolapsed mass seemed to be growing softer and more wine colored, he cauterized it with the actual cautery, plunging the tip at ten or twelve different points without going deeper than the base of the hernia. No attempt was made to close the gap in the skull at once, but a secondary plastic operation is desirable as the men with an open space in the skull keep worrying about it, and some have pain in the region at times. Five or six months after the primary healing he closed the gap in a few cases with a plate of aluminum or perforated ivory. The metal seemed to aggravate the subjective symptoms and the ivory was gradually absorbed. Better results were obtained with a rabbit scapula and best of all with the patient's own costal cartilages with the perichondrial surface turned toward the brain. In one case long under observation the cartilage technic has answered the purpose perfectly and has persisted unmodified.

This technic seems superior to all others as the cartilages form a yielding cover for the gap. Soldiers who have had a penetrating wound of the skull must be apportioned thereafter to light duty only. Men with a skull wound can bear immediate transportation without much harm, but once they have been operated on they should not be evacuated until healing is almost complete. Operations on the skull, therefore, should be done at a post from 10 to 20 kilometers back of the actual fighting line. If the injury was extradural, the man can be evacuated when cicatrization is complete, but when intradural, the resting period should be much longer.

Revista de la Asociacion Medica Argentina, Buenos Aires

October, 1917, **27**, No. 155

50 Reenforced Technic for Operating with Umbilical Hernia. A. J. Bengolea.—p. 409.
51 *Syphilis of the Uterus. J. Bordarampé.—p. 417.
52 Anuria from Calculus in Single Kidney. E. Castaño.—p. 423.
53 The Mineral Springs of Argentina. E. H. Ducloux and P. Belou. —p. 430. Continuation.
54 *Epinephrin in Heart Block. P. J. Hardoy and B. A. Houssay.—p. 462.
55 Hemophiliac Joint Disease. G. Madero.—p. 472.
56 Roentgen Study of Ileal Constipation. J. A. Saralegui.—p. 493.

51. **Syphilis of the Uterus.**—Bordarampé has been making a special study of the direct influence of syphilis on the uterus, tubes and ovaries and the importance of specific treatment, alone or as a preliminary to operative measures. He describes two cases in which there were evidently gummatous lesions in the uterine walls. The Wassermann reaction was positive, and in one case uterine hemorrhages and watery discharges had returned every week or two for nearly two years. The woman had three children. Cureting failed to show any signs of cancer, but the uterus was evidently sclerous with small interstitial hemorrhagic foci. Under mercurial and potassium iodid treatment the hemorrhages ceased and the uterus shrank to normal size and smoothness, and menstruation returned to normal.

54. **Action of Epinephrin in Heart Block.**—The experiments on dogs and the clinical experiences related confirm that epinephrin does not break up heart block when there is total dissociation. It may even bring on partial heart block in hearts with apparently normal conduction of the impulse. The epinephrin accelerates the rhythm of the auricles and ventricles but it acts on them separately, and they retain their independent beat in the total block cases.

Revista de Medicina y Cirugia, Havana

Oct. 25, 1917, **22**, No. 20

57 Reactivation of Wassermann Reaction. B. Saenz.—p. 533.

Nov. 10, 1917, **22**, No. 21

58 *Uterine Cancer in Cuba. E. R. de Aragon.—p. 559.

58. **Uterine Cancer in Cuba.**—De Aragon insists on the importance of uprooting the popular impression that cancer is inevitably fatal from the first. At the Tamayo dispensary in Havana, fourteen had cancer of the 450 women patients, and in all the malignant disease was beyond an operation when first seen. He warns that because cancer is most prevalent between 40 and 70, is no reason for neglecting to examine younger women for cancer. One of the fourteen women was only 22 and the cancer of the cervix and vaginal walls was beyond operative measures. Small hemorrhages after coitus are among the earliest symptoms. There were 132 deaths reported in Cuba in 1902 from cancer of the female genital organs, seventy-five white and fifty-seven negro women; in 1911 the figures were respectively 199 with 133 white and sixty-six negro women.

Mitteilungen a. d. med. Fakultät. der k. Univ. zu Tokyo

June, 1917, **17**, No. 4

59 *Viscosity of the Blood with Experimental Anemia. S. Saneyoshi. —p. 401.
60 *The Pharmacologic Action of the Poison of the Tetrodon Globe Fish. T. Itakura.—p. 455.
61 Changes in the Blood of Animals after Injection of Typhoid Bacilli. II. S. Tachigara and Y. Miura.—p. 539.
62 *Changes in the Blood of Splenectomized Puppies. S. Tachigara and T. Takagi.—p. 563.

59. **Viscosity of the Blood in Experimental Anemia.**—The findings in large numbers of rabbits are tabulated and compared with data from the literature. They all apparently confirm the assumption in regard to the persisting viscosity of the blood even during extreme anemia. As long as the organism is capable of reaction, the viscosity tends to keep on a normal plane.

60. **Fish Poison.**—The fish producing tetrodotoxin are of the balloon and puffer types. It seems to paralyze the local nerve fibers, but requires large doses for a paralyzing action at a distance (frogs).

62. **The Blood in Splenectomised Puppies.**—The number of erythroblasts increases markedly, up to 5,000 per cubic centimeters after splenectomy. The changes in the blood in puppies seem to be the same as in grown dogs after removal of the spleen, although the spleen in puppies is proportionally much larger.

Russkiy Vrach, Petrograd

Sept. 16, 1917, **16**, No. 33-37

63 Brilliant Green, Flavine and Other Stains in Treatment of Wounds. G. I. Turner.—p. 481.
64 *Ether-Oil Anesthesia by the Rectum. B. N. Kholtzoff.—p. 482.
65 Improved Technic for Administering Concentrated Solutions of Salvarsan, Arsol and Arsaminol. N. A. Solovieff.—p. 486.
66 The So-Called Pseudo-Aneurysms. N. A. Dobrovolskaya.—p. 487.
67 *Prolapse of the Brain with Wounds of the Skull. V. N. Novikoff.—p. 489.
68 Action of Different Alkaline and Alkaline-Earthy Metals on the Vessels of Internal and Peripheral Organs. M. I. Gramenitzky. —p. 493. To be continued.
69 Vaccine Therapy in Typhoid. A. V. Lavrinovitch.—p. 497.
70 Vaccination against Typhoid. V. T. Trileff.—p. 500.
71 Some Cases of Tropical Ulcer in Soldiers. B. A. Bolter.—p. 504. To be continued.
72 Alkalinity of the Saliva under Different Conditions. M. A. Smirnitzkaya.—p. 507.

64. **Ether-Oil General Anesthesia by Way of the Rectum, Especially for Operations on the Kidneys.**—Kholtzoff says that he knows of over 1,000 cases in which anesthesia has been induced by injection of ether and oil into the rectum. Four fatalities from it have been reported in Russian literature. One was evidently due to the unusually large amounts of ether used and the small proportion of oil. The second was described recently in THE JOURNAL, Sept. 8, 1917, p. 857. A third was in a case of severe suppurative processes in the cervical vertebrae and vicinity, with intense septicemia; in the fourth, death occurred from paralysis of the respiratory apparatus several hours after the rectal anesthesia during a gynecologic operation with Trendelenburg position. Kholtzoff also reports a case from his own experience, death occurring a few hours after the ether rectal anesthesia. The patient was a man of 28 with tuberculous pyonephritis which had followed a bladder affection, and the man was debilitated by nearly a year of incessant fever. He died a few hours after the nephrectomy, evidently from operative shock. Kholtzoff mentions as serious complications that have been observed by Russian surgeons, a case of bronchorrhea, one of transient asphyxia during the operation and one of asphyxia three hours afterward, and postoperative jaundice in one case. The question as to the dosage is still unsettled, but the experience to date seems to indicate that 0.9 gm. ether to 0.9 pound of the patient's weight is the maximum dose. Also that the ether and the oil should be in equal amounts. But he warns that this estimation by body weight is more or less arbitrary. For example, a person with dropsy and one with obesity rightfully should have the weight of the dropsical fluid and of the excess of fat deducted before calculating the ether dose. In his fatal case the man weighed 135 funts (135×0.9 pounds $= 121.5$ pounds) and the mixture injected into the rectum totaled 120 gm. ether and 130 of oil.

He cites recent research by Bolyarsky which demonstrated a constantly injurious influence on the kidneys from chloroform, while with hedonal intravenously, and with ether, the indications constantly demonstrated that the kidneys had not suffered at all or only extremely slightly and transiently. For this reason Kholtzoff thinks that the ether-oil rectal anesthesia is specifically indicated for operations on the kidneys. He has performed fifteen operations on the kidneys under the ether-oil rectal technic, all successful, with smooth recovery, except in the fatal case described above. There

was never any vomiting, and by the second or third hour after the operation the work of the kidneys did not differ from what it had been before the operation. The functioning of both kidneys or of the remaining kidney was on the proper plane.

He commends this method of anesthesia therefore particularly for operations on the kidneys or when we suspect that the kidneys are diseased; also for operations on the head and face in which the mask interferes with the work; also for exceptionally long and tedious operations, and also when the patient is much exhausted or when there is reason to anticipate trouble from ether by inhalation on account of cardiovascular disturbance. The work issues from the urologic department of the Obukhovsky hospital and the surgical department of another hospital at Petrograd. Kholtzoff makes a point of injecting a small dose of some sedative subcutaneously an hour before the operation, and he thinks that to this he owes his success with smaller doses of the ether than others have deemed necessary. He has often found 0.7 gm. of ether per 0.9 pound of body weight sufficient for complete anesthesia by way of the rectum. He emphasizes the necessity for rinsing out the rectum at once at the close of the operation, using a drain tube 20 or 25 cm. long and another 5 or 10 cm., pouring in the rinsing fluid through the longer tube and continuing the rinsing until the emerging water has no further smell of ether. He used always an equal amount of the ether and of the oil or a little more of the oil, thus 1 gm. of oil to 0.7 or 0.8 gm. ether. This protected the rectal walls against the irritation from the ether and none of the patients complained of smarting.

67. **Prolapse of Brain Tissue after War Wounds of the Skull.**—Novikoff has had 32 men with severe hernia of the brain tissue, and tried various methods of treatment as advocated by different authors. Among others he tried Irvin's method of dressing the hernia with a 40 per cent. solution of liquor formaldehydi. This proved disastrous as a dry eschar formed and stuck to the dressings, tearing the brain tissue as the dressings were removed. The method found best from every point of view was to pour warm sterilized liquid petrolatum over the herniated brain tissue and cover with gauze dipped in the same, with a dry dressing outside. The region was protected with a kind of turban, a large ring of cotton wrapped in gauze, placed as a high wall around the exposed brain. It is easily held in place by sticking it to the skin with a little glue. He thinks it is more than chance that the 9 patients treated with the liquid petrolatum all recovered, including 3 with an abscess in the brain. The total mortality was 50 per cent. in his 32 cases. Demme in 1859 had 16 deaths in 21 cases; all of Pirogoff's cases of the kind terminated fatally (1854-1855); in the American Civil War of 1861-1865 Hildebrandt reported 36 deaths in 43 cases; Stevenson in the Boer War, 7 in 12; in the Russo-Japan War, 32 in 59 cases. Novikoff's 16 deaths in 32 cases compare favorably with these figures.

If the patient is seen soon after the wound and the temperature is normal and general condition good, we are justifield in waiting to see if the prolapsed brain will not subside spontaneously. Under other conditions the question is whether there is suppuration in the depths or not. The brain should be punctured in various directions, seeking for pus. If none is found, he advises to introduce the puncture needle in the direction of the lateral ventricle, investigate the character of its contents, and drain if there is pus. He found pus accumulated at the base of the hernia of the brain in 11 cases, and pus in the lateral ventricle in another case. In 2 others there was acute hydrocephalus; both these patients recovered. Of 14 with an abscess in the brain, 8 died; 2 without an operation and 6 after an operation to drain the pus pocket. The congestion, hyperemia and accumulation of blood or cerebral fluid readily explain the tendency to hernia on the part of the brain tissue, and the spontaneous subsidence as conditions in the tissues otherwise tend to approximate normal. Radical measures are absolutely uncalled for.

Hospitalstidende, Copenhagen

Nov. 7, 1917, **60**, No. 45

73 *Congenital Neuroblastoma. P. Hertz and K. Secher.—p. 1093.

73. **Congenital Tumor in Suprarenal.**—The male infant died at the sixteenth month from acute meningitis. A congenital tumor in the left suprarenal had been overshadowed by a large metastatic tumor in the liver. At the age of 2 months the abdomen measured 49.5 cm., the chest 37 cm. The tumor in the suprarenal did not begin to grow rapidly until the thirteenth month. Necropsy disclosed that it was a so-called neurocytoma or neuroblastoma. About thirty similar cases are on record. The oldest known case was in a child of 9; eighteen of the children died in the first year of life. In only five of twenty-one with full data was the growth bilateral. The huge metastatic tumor in the liver and the manifestations of Addison's disease after the sixth month of life were special features of the case here reported. It is illustrated and the literature analyzed in detail.

Norsk Magasin for Lægevidenskaben, Christiania

November, 1917, **78**, No. 11

74 *Functioning of the Liver in Pathologic Conditions. L. Dedichen. —p. 1241. To be continued.

75 Postpartum Hemorrhage from Atony of the Uterus. A. Arnesen. —p. 1360.

76 *Bone Cysts and Sarcomas. E. Platou.—p. 1365.

74. **Functioning of the Liver in Pathologic Conditions.**—Dedichen describes in this first instalment what has been accomplished to date in estimation of the functional capacity of the "king of the organs." He says of urobilinuria that it is encountered with heart disease only when there is stasis in the liver. This condition was realized in all but four of his sixty cases of heart disease. It is a constant symptom with liver disease when the bile is not shut off from the bowel. In his 114 cases of liver disease, urobilinuria was most pronounced with stasis liver, cirrhosis, and syphilis of the liver and catarrhal jaundice. In one case of cirrhosis, confirmed by necropsy, urobilinuria and bilirubinuria alternated regularly but the stools were free from urobilin. In another case of cirrhosis there was constantly bilirubinuria with clay-colored stools. Anemia from destruction of blood is accompanied by urobilinuria, but not secondary anemia. Primary anemia must therefore be excluded before accepting urobilinuria as a sign of liver incompetency. Typhoid, pneumonia and scarlet fever are usually accompanied by urobilinuria, and some declare that recovery should not be considered complete until the urobilin findings are normal. With poisoning of different kinds, including alcohol, the persistence of urobilinuria seems to indicate a tendency to cirrhosis already installed. In five cases of typical exophthalmic goiter, urobilinuria was constant and he found it in 83 per cent. of 60 pregnant women, but fluctuating and not pronounced.

With rare exceptions, he declares, pronounced urobilinuria must be regarded as a sign of absolute insufficiency of the liver. He applied various parallel methods for determining the urobilin in the urine and stools. The simplest test for urobilinuria is to add tincture of iodin, a drop at a time, and thereon an equal amount of Schlesinger's reagent and filter at once. The fluid shows fluorescence with positive findings. His tests with levulose, galactose and dextrose on fifty-eight patients with various forms of liver disease showed that alimentary elimination of sugar is a common symptom with liver affections, and, when pronounced, can be regarded as a sign of insufficiency of the liver. With catarrhal jaundice, galactosuria seems to be constant, and levulosuria occurs in over 62 per cent. Other tables show the blood sugar content before and after these tests and the nitrogen metabolism findings.

76. **Bone Cysts and Sarcoma.**—Platou relates the present status in four cases of bone cysts with giant cells in which the diagnosis had wavered between simple fibrous ostitis and sarcoma. The giant cells and certain other findings seemed to indicate malignant disease, but as the patients are still in good health from one to two years since the operation, the benign nature of the process seems to be established. The leg was amputated in one of the cases, but this seems now to have been unnecessary. This giant-cell, richly cellular structure encountered in certain forms of bone disease can be safely given conservative treatment. His original report on these cases was summarized, Dec. 30, 1916, p. 2042.